

Results from this study challenge the assumption that animal abusers commonly “graduate” from violence against animals to violence against humans. The criminal records of 153 animal abusers and 153 control participants were tracked and compared. Animal abusers were more likely than control participants to be interpersonally violent, but they also were more likely to commit property offenses, drug offenses, and public disorder offenses. Thus, there was an association between animal abuse and a variety of antisocial behaviors, but not violence alone. Moreover, when the time order between official records of animal abuse and interpersonal violence was examined, animal abuse was no more likely to precede than follow violent offenses. Although these findings dispute the assumption that animal abuse inevitably leads to violence toward humans, they point to an association between animal abuse and a host of antisocial behaviors, including violence. Also discussed are the methodological problems of demonstrating sequential temporal relations between animal abuse and other antisocial behaviors.

The Relationship of Animal Abuse to Violence and Other Forms of Antisocial Behavior

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Previous research has often assumed a “violence graduation hypothesis” whereby animal abusers are expected to work their way up from harming animals to harming people. The strong form of the graduation hypothesis suggests that the presence of cruelty to animals at one developmental period predicts interpersonal violence at a later developmental period. From this

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viewpoint, violence toward animals comes first and is subsequently generalized to humans. According to this form of the hypothesis, the 5-year-old who abuses animals is on the way to becoming an elementary school bully, aggressive adolescent, and adult violent offender. This simplistic model belies more complex associations that may exist between animal abuse and violence. For example, making this assumption has led researchers to ignore the possibility that aggressive individuals instead might begin with violence toward humans and later move on to animals or might restrict their violence to human victims.

A general form of the graduation hypothesis is actually codified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association [APA], 1994). The adult personality disorder most closely related to violent behavior is antisocial personality disorder (APD) and its diagnosis has, as a prerequisite, the presence of conduct disorder (CD) prior to age 15. The first area of concern listed under the APD diagnostic criteria is, "failure to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest" (APA, 1994, p. 649). Although aggressiveness is also listed as a symptom of APD, there is no specific mention of animal abuse. This contrasts with the diagnostic symptoms for CD, which include cases where a child or adolescent "has been physically cruel to animals" (APA, 1994, p. 90). Physical cruelty to animals is one of 15 separate symptoms listed under the CD classification.¹

Since Macdonald (1961) first proposed his triad of childhood characteristics—enuresis, firesetting, and cruelty toward animals—as symptomatic of violence proneness in later life, investigators have sought to document and clarify the relation between animal abuse and interpersonal violence. Aside from a few case studies, the early evidence has been less than compelling (see Levin & Fox, 1985). Many researchers who followed Macdonald did not find a significant association between cruelty to animals and violence against people (see Felthous & Kellert, 1987). In a controlled study of personal histories, Macdonald (1961, 1968) himself failed to establish that violent psychiatric patients were significantly more likely than nonviolent psychiatric patients to have abused animals.

By contrast, more recent research has purported to find supporting evidence for the hypothesis that aggressive individuals are also abusive toward animals (Felthous, 1980; Felthous & Yudowitz, 1977; Kellert & Felthous, 1985). For example, Kellert and Felthous (1985) uncovered significantly more childhood cruelty toward animals among "aggressive criminals" than among either "nonaggressive criminals" or "noncriminals." More specifically, they found that 25% of aggressive criminals, 5.8% of nonaggressive criminals, and none of the noncriminals had abused animals five or more times in childhood. Although they did not study childhood cruelty toward

animals, other researchers have found strong associations between aggressive behavior and animal abuse. Ascione (1998) found that 71% of battered women in a shelter who owned a pet reported that their assaultive male partners had threatened to harm or had actually harmed the family pet, and Renzetti (1992) reported that 38% of pet-owning abused women in lesbian relationships claimed their abusive partners mistreated their pets.

An interesting exception to these recent studies is the research by Miller and Knutson (1997) who provide less enthusiastic support for the link between animal abuse and violence. Using self-reports, they reportedly failed to find a substantial association between past experiences of animal abuse and physical punitiveness ($r = .13, p < .05$), and noted that past experiences of animal abuse did not differentiate the four groups of offenders they had classified (e.g., homicide, violent, sex, and other offenses).² Although Miller and Knutson (1997, p. 59) conclude that their data were "not consistent with the hypothesis that exposure to animal cruelty is importantly related to antisocial behavior or child maltreatment," they themselves urge caution about interpretation of their findings. First, they note that base rates of some exposure to animal cruelty were quite high in this incarcerated sample (i.e., 71% reported some exposure). This also was the case in a second study they conducted with 308 undergraduates in which 68.9% of males and 33% of females reported some exposure to animal cruelty (this gender difference was statistically significant). Second, Miller and Knutson (1997) note that the distribution of scores on the composite measure of exposure to animal cruelty was positively skewed (i.e., most respondents scored in the low range) and leptokurtic (i.e., more sharply peaked than bell shaped). Because these characteristics indicate a restricted range of scores, correlational analyses were less likely to yield significant results.

The present study was designed to test the violence graduation hypothesis against the deviance generalization hypothesis according to which animal abuse is simply one of many forms of antisocial behavior that can be expected to arise from childhood on. Social deviance theorists (e.g., Osgood et al., 1988) argue that a wide range of criminal behaviors are positively correlated with one another either because one form of deviant behavior leads to involvement in other forms of deviance or because different forms of deviance have the same underlying causes. In other words, individuals who commit one form of deviance are likely to commit other forms as well, and in no particular time order (Akers, 1984; Brownfield & Sorenson, 1987; Dembo et al., 1992; Donovan & Jessor, 1985; Harrison & Gforer, 1992; Hirschi & Gottfredson, 1994). When applied to animal abuse, the deviance generalization hypothesis makes no assumptions as to time-order, allowing for the possibility that animal abuse might occur either before, after, or concurrently

with antisocial behavior directed at humans. In short, if the deviance generalization hypothesis is correct, animal abuse will correlate just as strongly with nonviolent criminal behavior as it will with interpersonal violence, and animal abuse will be as likely to occur after interpersonal violence toward humans as before it.

METHOD

There are two major methodological problems with prior research on the relationship of animal abuse and violence. First, research reporting a connection between animal abuse and interpersonal aggression or criminality has typically relied on self-reports of groups of people who, from the study's outset, are seriously troubled or disturbed. The assumption in these studies is that if you cannot establish an abuse-violence link in extreme cases, you surely will not find it in the general population. Volunteer samples of adult prisoners have been asked to recall doing harm and violence to animals during childhood—inflicting pain and suffering on pets, wildlife, or livestock (e.g., Kellert & Felthous, 1985). Important issues of validity develop when studying volunteer participants from an inmate population. For one, large numbers (more than 50%) typically refuse to cooperate; and those who do participate may have a psychological vested interest in presenting mean and aggressive personae. As a result, they might be expected to exaggerate, or even to fabricate, in discussing the violent side of their personalities. It should come as no surprise that inmates who are willing to disclose their aggressive activities toward humans would also be willing to disclose their aggressive activities toward animals. The relationship between aggressiveness and animal abuse may therefore be, in part, a result of selective disclosure for the sake of self-presentation than anything else.

In conducting the present research, we skirted the issue of self-disclosure bias by investigating official records of criminality in a sample of animal abusers who had come to the attention of the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA). The MSPCA is the largest animal welfare organization in Massachusetts and is legally empowered to investigate alleged cruelty cases throughout the state. Using Vermeulen and Odendaal's (1993) and Arluke and Luke's (1997) classifications of animal abuse, *cruelty* was operationally defined as any investigated case where an animal had been intentionally harmed physically (e.g., beaten, stabbed, shot, hanged, drowned, stoned, poisoned, burned, strangled, driven over, or thrown).

Chart review of MSPCA records from 1975 to 1986 revealed 153 participants who were prosecuted for at least one form of animal cruelty listed above. There were 146 male and 7 female participants. The mean age of abusers was 31 years, although ages ranged from 11 to 76 years. Eighty-eight participants (58%) were younger than age 21, whereas 65 participants (42%) were older than this age. Of the abused animals, 69% were dogs, 22% were cats, and 9% were birds, wildlife, horses, or farm animals.

Simultaneously, a search was conducted for case controls that would closely match the neighborhoods of abusers. Neighborhoods, by definition, tend to be homogenous in terms of socioeconomic status and related characteristics; city or suburban blocks rarely differ by income or property levels, and many observers have commented on the racial and ethnic segregation of America's neighborhoods. For each animal abuser, municipal voting lists were obtained for the abuser's neighborhood in the same year as the cruelty incident. Case controls were matched by gender, socioeconomic status, and age by randomly picking an individual of the same sex, same age range (by decade), and same street. If a street match could not be obtained, an appropriate individual was used from an adjacent street. In instances where age or date of birth was not provided on the voting lists, names of people of the appropriate gender from the list were run through the state registry of motor vehicles computer to obtain this information. Verification that this individual was the same individual listed was determined by matching the address or identifying matching parent/spouse names.

A second problem with prior research on this topic is that violence is treated as the sole dependent variable. However, by only examining the violent behavior of troubled individuals, prior studies neglect the possibility that abuse may be subsequently linked to other kinds of problems in the general population, in addition to violence. That is, if the dependent variable were antisocial behavior, including but not limited to interpersonal aggression, and if samples from the general population were studied, then society may have even more reason to pay attention to animal abuse, if connections are found here.

Using state computerized criminal records, both abusers and controls were tracked in the state's criminal justice records system. This tracking identified each participant's adult criminal record in the state of Massachusetts and the results were coded according to Douglas and his colleagues' (1992) classification of criminal offenses (i.e., violent, property-related, drug-related, public disorder, and/or others). Because juvenile records are sealed in Massachusetts, we could not obtain criminal records for participants younger than age 17. The dates of these offenses were recorded to examine the time order between animal abuse and criminal acts.

Of course, there are some limitations with our study design that could not be overcome. Our use of official reports of single cases of abuse may have underrepresented those episodes of animal abuse that may have preceded violent crimes committed by members of our sample but never came to the attention of authorities. Had we instead studied repeated acts of abuse, it is possible that the graduation hypothesis might have been supported because psychopathology may be more present in animal abusers with repeated offenses than in those who commit single acts of abuse. The former may use animal abuse as a model for future aggression against humans, whereas the latter may abuse animals as part of a general expression of antisocial behavior.

It is clear that a definitive "test" of the graduation hypothesis would require longitudinal studies of individuals beginning at a point in early development when either animal abuse or a variety of other antisocial behaviors were capable of being performed. However, it is not possible to test the graduation hypothesis in childhood because juvenile records are sealed. Methods of surmounting the obstacle of sealed juvenile records (that would still insure the rights of individual juveniles) would assist in establishing the sequential relations between animal abuse and other antisocial acts.

RESULTS

The graduation hypothesis was tested in two ways. Whereas the weak form of the hypothesis predicts an association between abuse and violence, the strong form suggests that animal abuse is uniquely related to violence toward humans as opposed to other forms of deviant behavior. Thus, by comparing animal abusers with control participants, we examined the extent to which animal abuse was correlated with several antisocial behaviors, including but not limited to violence. However, even if a strong and unique relationship were detected between abuse and violence, this would constitute a necessary but not sufficient condition to demonstrate the core of the graduation hypothesis; namely, that animal abuse subsequently leads to violence. Therefore, we also directly tested the sequential relationship between these two variables.

Results obtained in the present study indicate that animal abusers were significantly more likely than control participants to be involved in some form of criminal behavior, including violent offenses (Chi square = 68.24, $df = 1$, $p < .0001$). More specifically, 70% of those who abused animals also committed at least one offense, where this was true for only 22% of the

TABLE 1: Abusers and Controls Who Committed Various Offenses

	<i>Abusers</i>		<i>Controls</i>	
	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>
Violence	57	(37)	11	(7)
Property	67	(44)	17	(11)
Drug	57	(37)	17	(11)
Disorder	57	(37)	18	(12)

NOTE: The total number of offenses is greater than 153 because some offenders committed more than one type of offense. Percentages were calculated from a base of 153 offenders and 153

control participants; in other words, abusers were 3.2 times more likely to have some criminal record when compared with control participants.

As predicted by the violence graduation hypothesis, there was at least an association between abuse and violence. Table 1 shows that 37% of the abusers, but only 7% of the control participants, had committed a violent crime (Chi square = 73.70, $df = 1$, $p < .0001$). Thus, abusers were 5.3 times more likely to have a violent criminal record than control participants.

However, abuse was not only associated with violence. In contrast to predictions from the graduation hypothesis and in line with the deviance generalization hypothesis, abusers were significantly more likely to commit a host of other types of antisocial acts as well. In particular, they were four times more likely to be arrested for property crimes (Chi square = 71.34, $df = 1$, $p < .0001$), three and a half times more likely to be arrested for drug-related offenses (Chi square = 70.17, $df = 1$, $p < .0001$), and three and a half times more likely to be arrested for disorderly behavior (Chi square = 70.09, $df = 1$, $p < .0001$).

To examine the time order of animal abuse and violent offenses, abusers were studied who had been arrested for at least one criminal act ($N = 106$) included in Douglas's (1992) offender classification. This subgroup was then broken down into violent offenses that occurred either before or after abuse and other crimes that occurred either before or after abuse. Of course, we could only examine the temporal order of antisocial behavior reported in official offense records; some offenders may have committed undetected antisocial acts. Nevertheless, if the graduation effect applied, then participants should have been more likely to commit animal abuse before rather than after committing a violent crime.

As shown in Table 2, the graduation hypothesis could not be supported from an analysis of the sequence between animal abuse and antisocial behaviors including violence: Animal abuse was no more likely to precede than follow either violent offenses (Chi square = 1.42, $df = 1$, $p > .05$) or nonviolent

TABLE 2: Sequence for the Relationship of Abuse and Antisocial Behavior

	<i>Violence</i>		<i>Other Crimes</i>		<i>Total</i>
	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	
Abuse precedes	24	(42)	19	(39)	43
Abuse follows	33	(58)	30	(61)	63
Total	57	(100)	49	(100)	106

offenses (Chi square = 2.66, $df = 1$, $p > .05$). It should also be noted that overall, only 16% of the abusers studied graduated to subsequent violent crime. Indeed, as shown in Table 2, there actually was a tendency, although not statistically significant, for animal abuse to follow rather than precede nonviolent offenses.

DISCUSSION

Even though we could not test the graduation hypothesis from childhood to adulthood, we do provide some data indicating that graduation, from late adolescence through adulthood, does not happen. If graduation does not occur in adulthood, it is reasonable to speculate that it also does not occur in childhood. Rather than being a predictor or a distinct step in the development of increasingly criminal or violent behavior, animal abuse, as shown in these results, is one of many antisocial behaviors committed by individuals in society, ranging from property to personal crimes. At least in the general population, the deviance generalization hypothesis seems to be a more accurate characterization of animal abuse than the violence graduation hypothesis.

Despite our findings and the mixed results of prior researchers, the graduation hypothesis continues to be espoused by concerned lay people and professionals alike. There are many thought-provoking and heart-felt newspaper and magazine articles, editorials, essays, speeches, discussions, summit reports, and commentaries on the abuse-violence link (e.g., Arkow, 1994; Hutchinson, 1994; Landers, 1995; Lockwood, n.d.; Moulton, Kaufmann, & Filip, 1991) that emphasize the generality of the graduation hypothesis. Why does this thinking persist when it does not have strong and consistent empirical support?

First, some animal advocates advance the graduation hypothesis as a way to further public concern for animal mistreatment. If animal cruelty can be shown to be a strong predictor of violence, then judges, child care workers, law enforcement officials, and the general public might take animal abuse

more seriously than they now do. The emphasis on cruelty to animals in animal welfare organizations' public education efforts, in many ways, mirrors strategies that have been enlisted by child welfare organizations. Gordon (1989) noted that, at the turn of the century, child welfare agencies often highlighted the most egregious cases of child physical abuse despite the fact that the majority of their cases involved child neglect. This is understandable because child physical abuse cases are more likely to capture the attention and garner the support of the public.

Second, the graduation hypothesis is an appealing model for the many individuals interested in combating violence in society. Finding a single magic bullet would increase the possibility for intervention and prevention of violence. Despite the understandable wish for such a magic bullet, the link between animal abuse and violence does not appear to be so simple. Close adherence to the graduation assumption neglects more complex or subtle connections, which may bear more empirical fruit than thus far uncovered by researchers.

Third, a type of phylogenetic reasoning that is common in our culture underlies the graduation hypothesis. Graduation is assumed to be from animals to humans, with the abuser practicing or desensitizing himself to aggression against humans by beginning with phylogenetically "lesser" beings. Although commonsensically appealing, such an approach ignores the possibility of alternative kinds of graduation or progression. For example, graduation may not be from animals to humans at all, but from distant to intimate targets. If so, we may be just as likely to find cases where offenders are violent to humans before they abuse animals, when the former are strangers and the latter are intimates. The child who tortures his own puppy may have already been violent toward fellow children who are more distant or strange to him than his own dog. The family pet or even that of a neighbor, after all, may be regarded as more "human" than a strange person. Thus, there may be some sort of graduation—not necessarily from animals to people, but from remote to intimate targets. Laboratory experiments provide indirect evidence for this idea. In one study (Milgram, 1974), participants were more willing to inflict greater pain on human targets that were more removed from them than they were with targets that were physically closer. This may also apply to cases where antisocial but not violent behavior toward strangers (e.g., vandalism of cars) is followed by abuse of familiar (although not necessarily intimate) animals, perhaps belonging to neighbors.

Fourth, the graduation hypothesis has been presumably supported by anecdotal stories of animal torture in the early lives of serial murderers. Cases such as these, where animal abuse seems directly tied to interpersonal violence, abound in the literature on serial homicide and are often cited as

evidence by humane organizations for the graduation hypothesis. Because the abuse-violence link has not received extensive research attention, it is understandable that animal welfare organizations have emphasized high-profile cases where animal abuse appears related to interpersonal violence. Animal abuse may desensitize a perpetrator, may represent a form of rehearsal for the abuse of humans, and, if undetected, may embolden the perpetrator about his ability to escape the authorities and consequences for his acts. Although these accounts are held up as compelling evidence for the graduation hypothesis, there is evidence that many multiple killers, including some of the most notorious, did not as children abuse animals. For example, it is commonly thought that the young Jeffrey Dahmer tortured animals. However, there is no evidence that Dahmer abused animals, only that he was fascinated with dead animals and collected road kill (Fox & Levin, 1994). In other cases, the purported link between animal abuse and violence is reversed. In a recent analysis of woman battering, Jacobson and Gottman (1998) note that animal abuse is often a component of the emotional abuse suffered by battered women. When physical abuse decreases, emotional abuse may increase. Animal abuse may thus serve as a "reminder" that physical battering is still available as a control strategy. Although information is lacking about the temporal ordering of animal abuse and physical attacks on women, it is clear that animal abuse may follow physical attacks. As a further example of this, interviews with executed serial killer Arthur Gary Bishop (M. Carter, personal communication, March 23, 1998) discovered that Bishop was so distressed by the abduction, torture, and murder of his first child victim, that he was pursuing ways of "de-escalating." Bishop's "solution" was to acquire nearly 50 puppies from animal shelters and pet shops, take them home, and torture and kill them. Instead of reducing his need for violence, Bishop found that he so enjoyed the tortured cries of the animals, it helped motivate him to abduct, torture, and kill more children. Indeed, if one goes by anecdotal reports alone, there are even occasional multiple murderers who appear to exhibit marked compassion toward animals. For example, the Australian Martin Bryant, who in April 1996 was arrested for the deaths of 35 people, was a known "animal lover" who kept 30 to 40 cats and dogs in his home.

Even if true, the animal abuse-serial killer link does not help us understand the vast majority of animal abusers who are not as troubled. Many people who abuse animals do not become violent; they have the symptom but do not get the disease. Most, if not all, serial killers very likely were conduct disordered as children and adolescents, but only a minuscule proportion of conduct disordered children are likely to develop into such offenders. As noted

by a colleague who works with juvenile fire setters (M. Chappuis, personal communication, March 23, 1998), every adult arsonist he has encountered had a childhood history of fire setting, yet very few fire-setting children progress to adult arson. Clearly, we need to learn more about the variables that lead some abusers to later violence and not others.

Our findings should not dishearten those people who seek to rally society's interest in animal abuse. On the contrary, there is much to rally around. People who commit a single known act of animal abuse—oftentimes far less torturous and sadistic than the individuals examined in classic studies in the literature, such as those by Kellert and Felthous—are more likely to commit other criminal offenses than matched participants who do not abuse animals. As a flag of potential antisocial behavior—including but not limited to violence—isolated acts of cruelty toward animals must not be ignored by judges, psychiatrists, social workers, veterinarians, police, and others who encounter cases of abuse in their work. Moreover, a link might exist between animal abuse and violence, but future research needs to tease out how often and why a subset of animal abusers subsequently commit adult violent behavior. For now, there must be a moratorium on painting a broad stroke of violence over most cases of abuse; treating the latter as a magical bullet will only hurt the cause of those who genuinely champion the protection of animals.

NOTES

1. Unfortunately, researchers have not tried to tie the presence of cruelty to animals as a conduct disorder (CD) symptom to the probability of antisocial personality disorder (APD) in adults. If the strong form of the graduation hypothesis were viable and a sufficient sample of APD clients could be located, many clients would likely display cruelty to animals as part of their CD symptomatology. Furthermore, a prospective study of children identified as conduct disordered and who display cruelty toward animals as part of their symptomatology should display interpersonally violent behavior in adulthood and be more likely to be classified as APD than children who do not display animal abuse.

2. However, they did find that the violent offender group scored higher on a measure of experienced physical punitiveness than the other three groups. Miller and Knutson used an adaptation of Boat's (1994) *Inventory on Animal-related Experiences* to assess experiences with animal cruelty. Seven types of animal cruelty listed in this qualitative inventory were used to create a composite measure yielding a quantitative summary score. A major problem with this composite measure is that some of the items may reflect a respondent's antagonism toward animals but others may be neutral or suggest a strong affection for animals. In other qualitative research, Ascione, Thompson, and Black (1997) specifically separated observation of animal abuse performed by others from respondents' own cruelty toward animals. Such a separation might have been useful in the Miller and Knutson research.

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