
Developmental Links between Cruelty to Animals and Human Violence

Mark R. Dadds

University of New South Wales, Australia

Cynthia M. Turner and John McAloon

Griffith University, Australia

Reviews evidence for the significance of childhood cruelty to animals as a predictor of later violence toward humans. Moves are underway in the United States (US) and Britain to encourage communication and cross-fertilisation between animal welfare and child protection and crime prevention services. Literature on healthy versus deviant child–pet interactions is reviewed, with particular regard to the prediction of later violence. Assessment and definitional issues are addressed. The discussion culminates with a summary of substantive findings and the identification of several research designs that are needed to clarify the potential of early identification and remediation of child cruelty to animals as a mental health promotion and violence prevention strategy.

Developmental Links Between Cruelty to Animals and Human Violence

The phenomenon of childhood cruelty toward animals has slowly emerged as a topic of scientific interest for two related reasons. Concern for the possible pain and suffering experienced by animals became increasingly widespread after the emergence of companion animals as a social phenomenon in the 16th and 17th centuries. About this time, societies gradually allowed animals to enter the house, encouraging the view that animals are worthy of moral consideration (Thomas, 1983). Of considerable interest to the behavioural and health sciences is the idea that abusive treatment of animals is associated with increased likelihood of similar conduct toward human beings. A memorable depiction of this view was provided by English artist, William Hogarth, who condemned cruelty toward animals in his now famous series of four etching-engravings, *The Four Stages of Cruelty*, produced in 1751. The series depict a progression in four scenes: a boy being cruel toward animals; the same person, now a young man, beating a disabled horse; the young man killing a woman; and finally, the execution of the man himself. The etching-engravings eloquently summarise the proposed developmental progression attracting

Address for correspondence: Mark R. Dadds, School of Psychology, University of New South Wales, Sydney NSW, Australia 2052. Email: m.dadds@unsw.edu.au

much attention today; that early cruelty to animals is a prognostic sign of severe violence to follow in adulthood.

Hypothesised links between cruelty to animals and cruelty to humans is currently a topical and important issue. Instances of animal cruelty are increasingly being seen as grounds for investigation into the welfare of children and their families associated with the cruelty, and more generally, as a sign of concurrent or impending violence toward humans. Already in the United States (US) (e.g., First Strike Program — Humane Society of the United States), Britain, and elsewhere, moves are underway to integrate animal protection processes to child and family welfare and crime prevention bodies.

The aim of this paper is to provide a critical review of the literature on the phenomena, causes and correlates, and outcomes of animal cruelty, especially in children. Given our primary interest in community and preventive mental health, we pose the following questions: to what extent is cruelty to animals a concurrent or prognostic sign of pathology in children and/or their family systems. Can cruelty to animals be a specific predictor of concurrent and future violence (to humans) over and above other associated problems in the child and family? What are its correlates and causes? If cruelty to animals is a distinctive marker for concurrent or future problems, how can its identification be used to reduce violence and other problems in our society? Can cruelty to animals, or conversely, concern and empathy for the welfare of other organisms, be modified by social interventions?

The complexities of child–animal interactions are not unlike the complexities of human interactions; complexities that need to be explored, documented and empirically examined (Boat, 1997). However, one major impediment to research and reporting on the subject of childhood cruelty to animals is the lack of a clear and standardised operational definition of animal cruelty (a point noted by a number of researchers including Felthous & Kellert 1986; Miller & Knutson, 1997; Agnew, 1998). Without such a foundation, it is impossible to accurately measure the phenomenon, and develop a cohesive body of literature. In an effort to overcome this barrier, several researchers (e.g., Ascione, 1993; Felthous & Kellert, 1987; Vermeulen & Odendaal, 1993) have proposed definitions of animal cruelty.

Definitions of Cruelty to Animals

The Oxford English Dictionary defines cruelty as, "... a disposition to inflict suffering; delight or indifference to another's pain; merciless, hard-heartedness ...". Clearly this definition considers cruelty to be an enduring trait. Other definitions, specific to animal cruelty have emphasised a more behavioural dimension. Felthous and Kellert (1986) define "substantial cruelty to animals" as a "pattern of deliberately, repeatedly, and unnecessarily hurting vertebrate animals in a manner likely to cause serious injury" (p. 57). Brown (1988) and Vermeulen and Odendaal (1993) defines animal cruelty as above but notes that it can occur through acts of commission and omission, that is, failing to provide care.

A number of consistent dimensions of cruelty are raised by the above definitions. All definitions include a behavioural dimension ("inflicted"), whereby behaviour is typically seen to include both acts of commission (e.g., beating a dog) and omission (e.g., neglecting to provide adequate food or water). The majority

require a sense of purpose (“deliberate” or “knowingly”), however Vermuelen and Odendaal (1993) include accidental acts (“unintentional or ignorant”). The dimension of frequency is similarly controversial. Felthous and Kellert (1987) require repeated acts while Vermeulen and Odendaal (1993) suggest that a single act will suffice. There is somewhat more consensus on the issue of whether acts of cruelty are physical or psychological, with the majority of definitions accounting for both. Psychological abuse is considered to encompass the instillation of negative emotional states, such as fear and anxiety, as well as neglectful acts such as the deprivation of affection, or appropriate stimuli (Vermeulen & Odendaal, 1993). However, there is recognition that psychological abuse is somewhat subjective and harder to determine (Ascione, 1993; Vermeulen & Odendaal, 1993). Although not reflected in the final definitions, several researchers also provide comment on the affective dimension of obtaining pleasure from perpetrating or witnessing cruelty (Ascione, 1993; Felthous & Kellert, 1987). Finally, there is an implicit assumption in the definitions that the cruelty is proactive, that is, not solely occurring in response to provocation (as would be the case for a child who hits out at a dog who bites or scratches). For the purposes of this paper, then, cruelty to animals refers to repetitive and proactive behaviour (or pattern of behaviour) intended to cause harm to sentient creatures. The implications of this are that accidental, unknowing, and single occurrences, as would be expected from many young children, are not included.

Measurement of the Dimensions of Cruelty

Without consensus concerning the definition of animal cruelty and its relevant dimensions, uniform measurement of the phenomenon is difficult. Some investigators (e.g., Heath et al., 1984) have used the single checklist item “cruelty to animals” on the Achenbach Child Behavior Checklist (CBCL), while others have simply asked about childhood animal cruelty in unstructured clinical interviews. Even more contentious is the practice of reviewing inpatient files in order to determine if there is a history of cruelty. Boat (1985) and Kellert and Felthous (1985) developed structured interview schedules for the purposes of their own clinical/research use. While these represent improvements on unstructured assessments, there is still no uniformity across the depth of information that is gathered. It is little wonder that there are large discrepancies between empirical studies with respect to the prevalence and correlates of childhood animal cruelty.

In an effort to overcome the lack of standardisation in measurement, Ascione, Thompson and Black (1997) report on the development of the Children and Animals (Cruelty to Animals) Assessment Instrument (CAAI). The CAAI is a semi-structured interview developed for use with children over 4 years and their parents, to obtain information on animal maltreatment. The CAAI was field-tested with a community sample of 20 children (75% boys, 65% with a pet) and a clinical sample. The clinical sample included children in residential and day treatment programs for emotionally disturbed youth, incarcerated adolescents, and children accompanying their mothers to shelters for battered women. Interview questions were organised to assess witnessing and performing cruelty and kindness toward animals in four categories (farm, wild, pet, stray).

Ascione et al. (1997) included nine dimensions of cruelty. *Severity* is the degree of intentional pain or injury caused to an animal, as well as the sexual abuse of an animal. *Frequency* concerns the number of separate acts of cruelty noted in assessment results. *Duration* covers the period of time over which cruel acts occurred, while *Recency* is the dimension based upon the most current act(s) of cruelty. *Diversity* (across and within categories) concerns the number of different categories of animals harmed, as well as the number of individual animals harmed within categories. *Sentience* is an indication of the child's feeling for the animal that was harmed. This is distinct from the *Empathy* dimension, which is concerned with the degree of the child's remorse for cruel acts or the child's concern for the animals' welfare. *Covert* is a dimension assessing the child's attempts to conceal cruel behaviour, and finally, *Isolate* is whether the cruelty occurred alone or with other children and/or adults present. Inter-rater reliability for the CAAI ranged from 60–83%.

On a qualitative note, the CAAI was found to be valuable for assessing some of the motivations that children may have for engaging in animal cruelty. For example, curiosity/exploration was a significant motivator, especially for younger children. Other motivations included peer reinforcement for cruel behaviour (i.e., gang membership), cruelty as a means of altering the perpetrator's mood state, and imitation of the witnessed cruelty toward animals. Establishing the motivations for animal cruelty is extremely important as it assists in determining whether clinical intervention or remediation is required, and if so, of what nature.

Ascione et al. (1997) examined the relation between the CAAI and the "cruel to animals" item on the CBCL (Achenbach, 1991). Not surprisingly, they concluded that assessing cruelty by use of only one checklist item could provide misleading information or fail to fully capture the level of cruelty that some children displayed toward animals. While initial evaluations of the CAAI appear promising, one significant limitation to its widespread use is its length, which would typically exclude its use from anything except a research context. Consequently, Ascione and colleagues (1997) report that they are currently developing a checklist version.

Our team has similarly developed a parent and child report checklist form of the CAAI. Each of the 10 scoring criteria for the CAAI was used as a likert scale based on the scoring criteria of the CAAI. A pilot study of $n = 131$, 6- to 13-year-old children showed adequate convergence between parents and children, internal consistency of .80 for the child and .96 for the parent versions, and test-retest reliabilities over one week of .96 and .97 respectively (Dadds, Whiting, & Fraser, 2002).

Motivations for Cruel and Extremely Aggressive Behaviour Toward Animals

Given the definitions explored above, measurement of the phenomenon of cruelty stands to benefit by consideration of the various motivations or intentions that children have for engaging in acts of cruelty toward animals. While invoking unobservable mental states such as motivation and intentions raises some well-worn methodological problems, clearly there is a need for researchers to distinguish cruelty derived from developmental immaturity from cruelty that may be malicious.

Kellert and Felthous (1985) provide a preliminary classification of motivations for cruel behaviour toward animals derived from their retrospective interviews with incarcerated criminals. They have proposed nine motivations for cruelty; however, they note that the motivation for any particular act is typically multidimensional. First, they propose the motivation to control an animal. This encompasses shaping an animal's behaviour or eliminating undesirable characteristics of an animal (e.g., kicking a dog in the testicles when the dog barks in the house). The second motivation is retaliation, in which a perpetrator may use extreme punishment or revenge for a presumed wrong on the part of an animal (e.g., burning a cat for scratching the furniture). The third is satisfaction of a prejudice against a species or breed, whereby perpetrators designate a species as either good or bad (e.g., cat hatred). Kellert and Felthous (1985) note that extreme prejudice is frequently found against certain types of rodents, pests or insects (e.g., cane toads, rats). There is an accompanying belief that such animals are not worthy of moral consideration.

A fourth and equally common motivation is proposed to be the expression of aggression through an animal (e.g., where dogs are trained to attack other animals or people). A similar motivation is the enhancement of one's own aggression. Kellert and Felthous (1985) report that perpetrators used cruelty to animals as a way of improving their own aggressive skills or to impress others with their capacity for violence (e.g., perpetrators used animals for target practice, or to impress fellow gang members). The sixth motivation encompasses shock value and amusement (e.g., burning cats and setting them to run around a tavern). Retaliation or exacting revenge against other people by abusing their pets is proposed as the seventh motivation (e.g., castrating a neighbour's cat). The displacement of hostility and aggression from a person to an animal was a common motivation for criminals who had been abused as children. Displaced aggression typically involved authority figures that the subject hated or feared but was afraid to aggress against (e.g., perpetrators exacting revenge for beatings they suffered).

The final motivation is proposed to be non-specific sadism. This encompasses the desire to inflict injury, suffering, or death on an animal in the absence of any particular provocation or especially hostile feelings toward the animal. The primary goal here is the pleasure derived from causing injury and suffering. Kellert and Felthous (1985) found that sadistic gratification was sometimes associated with the desire to exercise total power and control over an animal, and may have served to compensate for a person's feelings of weakness or vulnerability (e.g., snapping animals' necks "for kicks and for fun"). Clearly, further empirical substantiation of these motivations for animal cruelty is needed as they are crucial to precision of assessment. As will be seen below, the prognostic value of early cruelty to animals is controversial and much of the contradictory findings can be attributed to problems of defining and measuring cruelty. Where the multidimensional nature of the motivations for cruelty have been assessed, the quality of the data increases.

Cruelty to Animals as Psychiatric and Prognostic Phenomena

The significance of children's cruelty to animals as a symptom relevant for assessing a child's psychological health has been formally acknowledged in the last two revisions of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R;*

DSM-IV; American Psychiatric Association [APA] 1987, 1994), specifically with reference to conduct disorder. Cruelty to animals was first included in the *DSM-III-R*. In the *DSM-IV*, the essential feature of conduct disorder is "... a repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated" (APA, 1994, p. 85). These behaviour patterns fall into four major groupings, one of which is aggressive conduct that causes or threatens physical harm to people or animals. In this context, cruelty toward animals is considered indicative of a disturbed mental and/or emotional state in children. However, consistent with the trend in the *DSM* toward multiple diagnostic criteria, (Spitzer, Davies, Russell, & Barkley, 1990), this is only the case when the cruelty is part of a larger pattern of antisocial behaviour, that is, held to be a part of a symptom cluster. Current diagnostic systems have little to say about the individual contribution of any particular behavioural symptom. Thus, the role of cruelty to animals within the general diagnosis of CD is unclear.

However, efforts have been made to re-evaluate and refine the diagnostic basis of conduct disorder with regard to specific behaviours and their prognostic value. Loeber, Keenan, Lahey, Green, and Thomas (1993) developed an alternative diagnostic framework for oppositional defiant disorder (ODD) and conduct disorder (CD) in an effort to construct a developmentally based diagnostic system for these disorders. They found that a number of low base rate symptoms, including cruelty to animals, did not discriminate well between different diagnostic categories. Loeber et al. (1993) advocate the importance of retaining low base rate symptoms within the symptom list, however, arguing that the *variety* of early problem behaviour is one of the best predictors of chronicity. In another study using meta-analysis of 60 factor analyses (Frick et al., 1993), cruelty to animals did discriminate between subtypes, falling in the extremes of the destructive dimension. Frick et al.'s (1993) destructive/nondestructive dichotomy corresponds to a wealth of CD literature supporting subtypes based on an aggressive versus non-aggressive distinction. Further, aggressive behaviour can be broken into reactive or proactive. The latter refers to premeditated, instrumental aggression, and would correspond most closely to the phenomena of intentional cruelty to animals.

Reviews indicate that early onset of symptoms, the early presence of firesetting, low intelligence, comorbidity, and severe social adversity are some of the common variables found to predict chronicity (Loeber, 1990; Robins & Price, 1991). Importantly, children with high levels of proactive aggression are at higher risk for later delinquency than those with reactive aggression only (see Dodge, Bates, & Pettit, 1990). In support of this, Luk, Staiger, Wong, and Mathai (1999) examined persistent conduct problems in a clinic-referred sample of 141 children and a community sample of 36 children aged 5–12 years. The children who showed cruelty to animals were found to have more severe conduct symptoms compared with the non-cruel group. The authors conclude that cruelty to animals is possibly a marker of a subgroup of conduct disorder that has a poor prognosis.

Despite the potential importance of early proactive aggression, few longitudinal studies have attempted to measure cruelty to animals in all but the most superficial ways (e.g., using one item from general adjustment measures such as the CBCL).

An exception to this general failure to measure cruelty comes from the early literature examining childhood cruelty to animals as part of a triad of behaviours (cruelty to animals, firesetting, and enuresis) proposed to be predictive of later violence/aggression and criminality. Heath, Hardesty, and Goldfine (1984) explored the historical basis to this behavioural cluster. They report that as early as 1905, Freud noted that it was common to warn children that playing with fire would lead them to wet the bed. Freud proposed a link between enuresis, firesetting, and sexual problems. Heath et al. (1984) report that while this relationship was maintained in the psychoanalytic literature, it was given a somewhat different direction by later authors who pointed to the importance of aggression in firesetting and bedwetting.

Heath et al. (1984) and Felthous and Kellert (1987) review the early literature with respect to cruelty, firesetting, and bedwetting as predictors of later criminality. At best, the relationship can be considered tenuous. Some studies found no significant relationships (e.g., MacDonald, 1968), whereas others found partially supportive relationships (e.g., Hellman & Blackman, 1966; Heller, Ehrlich & Lester, 1984). For example, Hellman and Blackman (1966) retrospectively compared aggressive and non-aggressive criminals in an effort to determine whether firesetting, enuresis, and cruelty to animals were predictive of aggressive adult crimes. Seventy-four per cent of the prisoners charged with aggressive crimes had a history of the symptom triad or part of the triad, while only 28% of non-aggressive criminals exhibited the triad or part of the triad. This was a statistically significant difference. However, Heller et al. (1984) retrospectively investigated the incidence of cruelty to animals, firesetting, and enuresis in the case reports of 1935 offenders evaluated at a court psychiatric clinic. The incidence of the triad, or part of the triad was found equally among violent and non-violent criminals. Significantly, only cruelty to animals significantly differentiated between those charged with a violent crime and those charged with a non-violent crime. In both of the previous studies, some subjects only exhibited a part of the triad. Indeed, there is no consensus within the literature that the component behaviours within the triad are related to each other. Some studies find no association between these behaviours (e.g., Michaels, 1955) while others find partial relationships (Kuhnley, Hendred, & Quinlan, 1982).

In an effort to determine if a relationship exists between firesetting, enuresis, and cruelty to animals, Heath et al. (1984) compared children exhibiting these behaviours on demographic variables, and clinical measures of adjustment (internalising and externalising behaviour, total pathology, and social competence). Participants were 204 consecutive outpatient admissions, aged 4–16 years (130 boys, 74 girls). Children were identified as enuretic, cruel to animals, or firesetting by parental identification on the CBCL (Achenbach, 1991). Additional clinical information was gained from the clinic charts and a family information sheet. Findings indicated partial relationships, with enuresis and cruelty to animals being related to, and interacting with, only a portion of the total firesetting population. Enuresis was significantly associated with non-cruel firesetters, and cruelty to animals was associated with non-enuretic firesetters. No significant associations were found between cruelty to animals, and socioeconomic status, age, or sex.

Heath et al. (1984) concluded that situational or environmental factors are likely to be more significant than individual behaviours (e.g., cruelty, firesetting, bedwetting) in predicting future aggressive behaviour.

Nonetheless, empirical study into the stability of cruelty from childhood to criminality in adulthood, the so called "graduation hypothesis" (Arluke, Levin, Luk, & Ascione, 1999) or "escalation thesis" (Bernie, 1999) continued. The retrospective research conducted by Alan Felthous and Stephen Kellert (Kellert & Felthous, 1985; Felthous & Kellert, 1986) has been influential in establishing a link between childhood animal cruelty and later violence/aggression toward people. Using the previously reported studies for guidance, they began with several assumptions. First, repeated acts of serious cruelty to socially valued animals (e.g., dogs) are more likely to be associated with violence toward people than are isolated acts of cruelty, minor abuses, and victimisation of less socially valuable species (e.g., rats). Second, if animal cruelty is associated with aggression against people, it is most likely associated with serious, recurrent personal violence. A single violent offence or act would not identify this core population with continuous aggression. Third, subjects must be interviewed directly because prison records and other documents do not contain systematically gathered and adequately detailed historical data. Fourth, if a positive history of cruelty to animals exists, it will most likely be elicited by inquiry into a number of areas wherein animal involvement is possible. One or two questions on cruelty to animals do not sufficiently tap the history of an individual's involvement with animals.

Based upon these assumptions, Felthous and Kellert (1986) defined substantial cruelty toward animals as "... a pattern of deliberately, repeatedly, and unnecessarily hurting vertebrate animals in a manner likely to cause serious injury" (p. 57). In addition, they defined adult aggression as that which is recurrent, impulsive and injurious to other people. Two prisons were studied and counsellors were asked to rate their assigned prisoners on a scale of aggressiveness from 1–10. Aggressive behaviours ranged from threatening speech to violent acts, with high scores reflecting frequent, severe, and multiform aggressive behaviour. Only those subjects with extremely high or low scores were asked to participate in the study. In addition to the prisoners, randomly selected men were interviewed as non-institutional control subjects. A standard interview schedule was administered to each participant. The interview items pertained to antisocial behaviours, environmental background, and various aspects of animal involvement such as owning family pets, raising livestock, training animals, hunting, and attending organised fights (e.g., dog fights). The subjects were asked about 16 specific types of animal cruelty. A survey on attitudes toward animals was also administered. For each subject who consented, a parent or family member who knew him in childhood was contacted and interviewed.

Statistical analysis showed a significant association between acts of cruelty to animals in childhood and serious, recurrent aggression against people as adults. It was found that 25% of the aggressive criminals had abused animals 5 or more times in childhood, in contrast to 5.8% of the non-aggressive criminals, and 0% for non-criminals. The differences between the aggressive criminals and control subjects were significant, regardless of whether the control group comprised non-aggressive prisoners or randomly selected non-prisoners. Therefore, the hypothesis that recurrent

serious animal abuse in childhood is related to a chronic violent disposition toward people was supported.

Arluke et al. (1999) provided evidence to suggest that it may be less appropriate to represent childhood or adolescent abuse of animals in terms of a "graduation hypothesis", and more appropriate to represent it in terms of a generalisation of deviance whereby the abuse of animals by children is seen as one of a range of forms of antisocial behaviour that becomes evident in childhood. Arluke et al. (1999) compared the criminal records of 153 animal abusers with the criminal records of the same number of controls who were matched on demographic characteristics. The results of the study indicated that while those who had abused animals were more likely to be interpersonally violent than were controls, they were also more likely than controls to engage in a range of antisocial behaviours, particularly property, drug and public disorder offences. In addition, the authors concluded that instances of animal abuse were no more likely to precede than they were to follow violent offences. These findings suggest that rather than representing animal abuse as a discrete step in the development of criminal/violent behaviour, it may be more appropriate to represent adolescent animal abuse as one of a cluster of anti social behaviours from which both violent and non-violent criminal behaviour may result.

Miller and Knutson (1997) used self-report data to investigate whether people charged with violent offences differed from people charged with non-violent offences with respect to prior exposure to animal cruelty. This study concluded that prior animal abuse did not differentiate between the four groups (homicide, violent, sex, and other) of offenders they investigated.

Felthous and Kellert propose that the above discrepancies within the literature may themselves have multiple determinants. For instance, the thoroughness with which historical information is obtained within different studies varies considerably. For example, their study involved a personal and in-depth historical interview, whereas others have used a single checklist criteria to ascertain animal cruelty. In the second part of the study, Felthous and Kellert (1986) isolated the subjects who had a pattern of substantial animal abuse in childhood. Of the 20 prisoners who gave this history, 16 belonged to the most aggressive category, and 4 fell into the non-aggressive category. Three of the 50 non-prisoners had shown a pattern of animal cruelty. Several other observations were made about abusive aggressive criminals (AAC) in comparison to abusive non-aggressive criminals, and abusive non-criminal subjects. AAC subjects tended to engage in a greater variety of abusive acts, tended to abuse a greater number of animal species, had been cruel to cats and dogs, showed less restraint during the act of abuse and less remorse afterwards.

These findings suggest that certain features of childhood cruelty to animals may be more meaningful in evaluating aggressive individuals. These features include: direct involvement, lack of self-restraint, lack of remorse, variety of cruelty acts, variety of species victimised, inclusion of socially valued species (e.g., pets), and motivations for cruelty. Felthous and Kellert therefore concluded that cruelty to animals appears to be one of several behaviours (e.g., injurious assaults, window smashing, fire setting) that can represent a pattern of impulsive, diffuse aggression

in childhood or adolescence. The pattern may or may not subside with attainment of adulthood. This interpretation is more consistent with Arluke et al. (1999), who suggest that animal abuse is one of a number of behaviours representative of a more general class of antisocial behaviour, rather than a distinct step in the development of adult criminal or violent behaviour.

This broader interpretation is in accordance with earlier studies (e.g., Hellman & Blackman, 1966) that suggest that childhood cruelty toward animals is a deviant interactional pattern that may operate as one component of a behavioural spectrum associated with violence and criminality in adolescence and adulthood. It must be concluded that while there are strong indications that cruelty to animals may have unique power in predicting later adult violence, no existing study has been able to unequivocally demonstrate that early animal cruelty is prognostically distinct from other aspects of early conduct problems and aggression. The design of a research program that would test this question is discussed at the end of this paper.

Causes and Correlates of Cruelty to Animals

Several etiological explanations for the development of cruelty in children exist within the literature, and below, they are presented as separate models. In reality, it is likely that the causal mechanisms are interactive.

Family Functioning and Parent–Child Interactions

Multiple variables indicating dysfunctional family functioning have been implicated in the onset and maintenance of aggressive and antisocial behaviour in children (see Dadds, 1995). Typically, however, they are mediated by dysfunctional parent-child interactions. Patterson (1982) identified coercive family processes as a major characteristic and contributor to child and family dysfunction marked by aggression. In brief, by failing to reinforce prosocial behaviour, backing down from requests, and reinforcing a child's escalating demands, parents negatively reinforce a child's increasingly defiant and aggressive behaviour. Similarly, harsh and abusive discipline practices, displayed when the child escalates to misbehaviour, are rewarded by the child's temporary capitulation. Such interactions typically result in an explosive escalation of aggression, and these coercive interchanges, once established, become reinforcing and self-sustaining. Established aggressive interactions within the family serve to intensify aggressive behaviour outside the family. Ascione (1993) speculates that children growing up in such families may learn to generalise aggressive and coercive control techniques and begin to apply such behaviours to animals. Flynn (1999) examined the relationship between corporal punishment inflicted by parents and the perpetration of animal abuse in 267 undergraduates. Males who committed animal cruelty in childhood or adolescence were physically punished more frequently by their fathers, both as preteens and teenagers, than males who did not perpetrate animal abuse. Over half of male teenagers who were hit by their fathers had perpetrated animal abuse. The social learning model has much to offer the study of childhood cruelty, both in terms of the proposed mechanisms (modelling, imitation, reinforcement theory, coercive processes) and its use of relatively rigorous methodologies. Particularly with young

children, the potential for direct observational studies of parent-child interactions with pets should be noted.

In their retrospective study of aggressive and non-aggressive criminals who were cruel to animals, Kellert and Felthous (1985) found that domestic violence was frequent among subjects with cruelty histories (particularly extreme paternal violence and alcoholism) and which has been supported by numerous other studies. Boat (1995) reports on battered women who frequently describe how pets have been stabbed, shot, hung, or otherwise mutilated by abusive spouses. Gelles and Straus (1988, as cited in Ascione, 1993) provide equally compelling evidence from children who were witness to parental violence. Deviney, Dickert, and Lockwood (1983) found that higher rates of animal abuse are found in families where child abuse or neglect is substantiated than in the general population. Deviney et al. (1983) studied 53 families who met New Jersey legal criteria for child abuse or neglect and who also had companion animals in their homes. Observations during home interviews revealed that pets were abused or neglected in 60% of these families. When the sample was categorised into physically abused (40%), sexually abused (10%), and neglected (58%), an alarming finding was that in 88% of families displaying child physical abuse, cruelty to animals was also present. Two thirds of pets were abused by fathers, one third by children.

A history of childhood sexual abuse is also associated with deviant interactions between children and animals. Ressler, Burgess, Hartman, Douglas, and McCormack (1986) explored the relationship of childhood sexual abuse to deviant interactions in 36 convicted sexually-oriented killers. Ressler et al. (1986) provide no methodological information regarding how they determined the presence of behavioural, emotional and somatic symptoms in childhood or adolescence. However, those offenders who were sexually abused in childhood or adolescence were significantly more likely than non-abused offenders to report, among other psychiatric symptoms, cruelty to animals, cruelty to other children, and assaultive behaviour toward adults. An analysis of the relationship between past sexual abuse and participation in certain sexual activities indicated that the sexually abused murderers were significantly more likely than non-abused murderers to engage in deviant sexual contact with animals (40% versus 8%).

Boat (1995) also cited anecdotal reports by several authors describing the sexual abuse of children in day-care settings and acts of bestiality. Forcing children to interact sexually with animals and ensuring children's silence by threatening to hurt or by actually maiming pets are noted in numerous case studies of sexually abused children. Therefore, the association between cruelty to animals and childhood sexual abuse clearly deserves further empirical attention.

On the basis of the evidence cited above, it appears reasonable for researchers and clinicians alike to be aware of the importance of childhood animal cruelty as a potential indicator of disturbed family relationships. The research clearly indicates relationships between the violent and abusive environments in which children are raised and children's own violent reactions toward animals. Indeed, Robin and ten Bensel (1985) reported that abused and disturbed youth suffered more pet loss, had their pets for less time, and were more likely to have had their pets killed accidentally or purposely than non-disturbed youth. While not directly addressing the

reliability and utility of using pet abuse as an indicator of child problems, the foregoing studies certainly provide broad support for more communication between pet and child welfare agencies.

Social Information-processing and Social Adjustment

Dodge and colleagues' research on peer rejection and social maladjustment in boys (Crick & Dodge, 1994; Price & Dodge, 1991) has shown that aggressive children display deficits and distortions at various levels of social information processing. For example, in ambiguous social situations, these children under utilise pertinent social cues, misattribute hostile intent to neutral peer behaviour, respond with aggression, and expect that aggressive responses will lead to reward (Crick & Dodge, 1994). Peers typically retaliate to such aggressive behaviour with aggression in return. The aggressive child's belief in a hostile environment is reinforced, as is his own aggressive behaviour. Ascione (1993) speculates that if such children can attribute hostile intentions to their peers, intention cues provided by animals would be even more ambiguous, and the child could easily respond to animals with aggression and cruelty. Ascione (1993) describes a boy's brutalisation of a dog after the dog had barked at him. The boy interpreted the bark as personally directed aggression, without ever considering that the dog may have been startled or frightened. However, research into whether cognitive styles predictive of aggression are also characteristic of cruelty to animals has not been conducted. Further, the idea of cruelty involves intentionality and the perpetrator taking pleasure in the suffering of the victim. Children who show reactive aggression only are the group with high levels of hostile attributional biases; children with proactive aggression are generally not characterised by hostile attributional biases (Crick & Dodge, 1994). This limits the usefulness of this model given its reliance on the imputation of hostility to others as the cause of the violent act.

Biological Factors

It is not the place here to present a general discussion on the biological models of aggression, however, some specific observations have been made that, when integrated with psychosocial correlates, may bear fruit. Kruesi (1989) notes that human aggression, both self- and other-directed, has been associated with low cerebrospinal fluid (CSF) concentrations of the serotonin metabolite 5-hydroxyindoleacetic acid (5HIAA). He briefly reports on the case of a 12-year-old girl, raised in a middle class household, who had a low CSF concentration of 5HIAA and a distinct history of physically cruel behaviour to animals by age 12. At a 4-year follow-up, the child was being held in a detention centre and had begun to self-harm. Kruesi concludes that the case study suggests that relationships between cruelty to animals and low 5HIAA concentrations warrant further investigation and prospective follow-up.

Rogeness, Hernandez, Macedo, Mitchell, Amrunga, and Harris (1984) consider the role of Dopamine- β -hydroxylase (D β H) in the development of aggression. D β H is an enzyme involved in the conversion of dopamine to norepinephrine. Twenty boys with very low levels of plasma dopamine (D β H) were matched and compared to 20 boys with plasma D β H greater than 15 μ M/min/L. All 40 had been

hospitalised in a children's psychiatric hospital. Rogeness et al. (1984) report a significant association between zero D β H and the diagnosis of conduct disorder, which incorporated cruelty to animals as a symptom. Interestingly, there were also significantly more cases of familial neglect or abuse in the zero D β H group. Such an association provides further support to the gene-environment interaction hypothesis. The two studies above highlight that biological abnormalities may be causal or merely correlates of adverse environmental conditions. The important implication is that children will vary inherently in their propensity to aggression and conversely, their propensity for empathy and nurturance. Thus, the type and severity of environmental adversity and learning needed to produce cruel behaviour will vary from child to child.

Dynamic Theories of Personality Development

Psychodynamic theorists argue that the foundation of aggression and cruelty in children arises from narcissistic injuries that threatens the cohesion of the self, especially a narcissistic injury inflicted by the (caregiver) of the child. Parens (1987) asserts that cruelty in children does not arise spontaneously. The mechanism and capacity for its experience and expression, however, is part of every infant's adaptive make-up and is ready to function at birth. Goldberg (1995) proposed a theoretical delineation of the development of the malevolent (cruel) personality, with references to his own clinical experiences. He proposed five stages to the development of the malevolent personality: (1) child of scorn: the shaming of the vulnerable child, (2) child of the devil: the inoculation of the "bad" self, (3) the transition from victim to perpetrator of insensitivity and disregard, (4) experimental malevolence, and (5) the forging of the malevolent personality.

Goldberg (1995) suggests that shame (stage 1) is one of the most devastating interpersonal weapons a person can use to influence or punish someone else. Each shaming experience, especially those that involve disregard and mistreatment, threaten to deplete a person's sense of personal identity. These experiences inform the sufferer in destructive and painful ways that he or she is inadequate. As such, they undermine the sufferer's interpersonal relationships and feelings of wellbeing and security. Chronic shame prevents one from defining oneself constructively to others, leaving one vulnerable to further abuse and neglect, and resulting in the internalisation of inadequacy (stage 2). A critical aspect of Goldberg's model is that the shaming is *disintegrative* in that it results in disrupted interpersonal relationships and stigmatisation. This is in contrast to criminological models of "reintegrative shaming" (e.g., Braithwaite & Mugford, 1994) that argue that a shaming process that co-occurs with social reintegration can be an effective method for reductions in deviant and criminal behaviour.

People in stage 3, unlike earlier stages where shame and humiliation was passively tolerated, feel disregard and insensitivity toward others, both toward those who have mistreated them and toward anyone else who tries to get close. Everyone in the world is regarded as responsible for having permitted shame and humiliation. The sufferer then begins to experiment with malevolent actions (stage 4) and the relief/pleasure that such actions bring are subsequently internalised into the malevolent personality (stage 5). Thus Goldberg (1995) believes that people make their

choices to behave in such a way by disregarding any positive/pleasurable experiences that result from acting in a non-malevolent manner. While it is easy to criticise these personality/analytic ideas as highly speculative, Goldberg's model is noteworthy in that it directs us to consider a developmental progression toward cruelty, and in terms of its stage specification, is testable through empirical studies.

Positive Interactions Between Children and Animals

It is important to note that a pattern of cruelty to animals can also mark a loss of opportunities for much positive learning in the child's life. A number of authors have pointed to the developmental importance of the relationship between children and companion animals (Agnew, 1998; Kellert & Felthous, 1985; Robin & ten Bensel, 1985; Wilson & Turner, 1998). Robin and ten Bensel (1985) argue that companion animals are a vital part of the healthy emotional development of children. They assert that the constancy of animal companionship can facilitate the child's mastery over a variety of developmental tasks, such as developing a sense of responsibility and competence, and developing the feelings of empathy toward others. Some literature even suggests that pets may have a preventative effect on the development of mental disturbance. For example, Levinson and Mallon (1997) suggest on the basis of clinical experience that children who have pets evidence less separation anxiety than those who do not. Bodmer (1998) suggested that having a positive relationship with a pet can moderate the negative effects of family and other stressors on children's wellbeing.

Robin and ten Bensel (1985) review research that suggests that animals can have positive benefits by serving a variety of roles. First, pets function as playmates and companions. Companion pets have a unique ability to create feelings of security within children. They are devoted, attentive, loyal, and non-critical, and they unconditionally love and accept a child. In this way, pets have the ability to function as transitional objects, assisting children in the developmental task of separation and individuation and helping children to feel safe within this process. Second, pets allow for the gradual introduction of responsibilities in a child, and allow the child to experience the pleasures associated with such responsibility. Much of the usual activity of children and pet animals resembles a parent/child relationship, with the animal representing the child as an infant. Consequently, children may treat their pets as they are treated, or as they want to be treated themselves. Pets have been found to elicit maternal and caring behaviour in even very young children (Fogle, 1983; cited in Robin & ten Bensel, 1985). However, very little research of this type has been conducted. A high priority is for more experimental research to be conducted using direct observations of nurturance, care, and empathy versus aggression, neglect, and cruelty as measures of the ways children and their parents interact with animals.

Third, pets provide education and life experiences for children. For example, observation of animals can lead to education about the normal functions of sexuality and elimination. Similarly, pet loss provides experience for the child in dealing with the process of death and bereavement, thus preparing them for later experiences with human life. It is common that children learn through pets that

grief following death is a natural process that is painful, but is tolerable and does not last forever.

Finally, Robin and ten Bensel (1985) argue that pets function in a similar way to a new family member within the family system. With the arrival of a new pet, families undergo a variety of changes, both positive and negative. The role of the pet depends upon the emotional climate of the family, as well as the family structure. For example, pets may facilitate increased familial closeness as a result of playing together with the pet, or they may exacerbate family dysfunction as a result of disagreements over the rules and care of pets. Pets may also become a part of the families' pathology. For many disturbed and abused children, a pet may become a sole love object. Alternatively, for violent and abusive families, pets often serve as an object against which violence may be perpetrated.

To this list we would add the importance of developing empathy for the experiences of other organisms. A common occurrence in functional families is the parent modelling caregiving to a pet and educating the child about the pet's feelings and needs (Agnew, 1998). All young children will at one time accidentally or experimentally cause discomfort to a pet. Consider the differential effects of the parent who shows concern and advocates the pet's feelings to the child, compared with the parent who finds the discomfort amusing and encourages the child to continue, on the child's development of empathy. Little empirical work is currently being done in this regard, however, the idea has been around for some time. Bathurst (1933, cited in Baenninger 1991) found that preschoolers who lived in houses with pets displayed more sympathetic responses to their peers than were preschoolers who came from homes without pets. This idea has important implications for community intervention models and will be reviewed in the next section.

Thus, cruelty to animals may not only represent a marker for problematic development in children, but also a wealth of lost opportunities for the positive social benefits that healthy relationships with pets can bring.

Potential Strategies for Identification and Intervention

Clearly, the evidence that cruelty to animals has any prognostic over and above other symptoms of conduct problems is at present not strong enough to warrant alarm at every observed instance, or special programs being set up to identify its occurrence. However, evidence of a pattern of cruelty should warrant further assessment of a child's general adjustment and family circumstances. It appears that a pattern of cruelty in a child with conduct problems may indicate a high risk for later delinquency, and may be a sign of violence within the child's environment.

Apart from family members, neighbours and in some instances, teachers, the professionals most likely to identify cruelty to pets are veterinarians. Research indicates they regularly detect abused animals, and feel ethically obliged to report, with nearly half believing that reporting should be mandatory (Donley, Patronek, & Luke, 1999).

Given that the evidence reviewed indicates that cruelty to animals is likely to be a part of a complex of conduct and family problems, the idea of working directly or specifically on the cruel behaviour is less indicated than attending to the underlying problems that the cruelty reflects. Further, there is very little literature

describing or evaluating direct interventions for cruelty. However, there are some indirect reasons for not entirely dismissing this idea. Programs for children and adolescents who have committed sex offences (and who have usually been abused themselves) typically focus on the development of empathy as a prime target (Becker, 1996; Bunston, 2000; Rich, 1998). Similarly, interventions for victims of physical and emotional abuse typically target the experience of receiving and showing empathy as a major component. Recent articles from therapists have even discussed ways that pets can be utilised in therapy to aid children who have problems with empathy (Fine, 2000; Mason & Hagan, 1999).

We could locate only one trial, however, that directly worked with children's relationships with animals. Ascione and Weber (1996) assessed a year-long school-based humane education program on 4th graders' attitudes toward animals. Generalisation to human-directed empathy was also measured. In a controlled trial, increases in humane attitudes relative to the control group was evident at 2-year follow-up and had generalised to human-directed empathy. The study involved a community sample and so effects on the severe end children showing cruelty is unknown. However, it paves the way for research looking at the effectiveness of such interventions used both preventively, as tertiary treatments, and as contexts in which children with major problems with cruelty can be identified.

Conclusions and Directions for Future Research

In summary, we are beginning to develop a clearer picture of the phenomenon of childhood animal cruelty and this review has highlighted several noteworthy points. Before summarising these substantive conclusions, we wish to make some suggestions for research studies that are a high priority to move the area onwards:

1. Epidemiological studies of child and adolescent cruelty to animals that adopt: a developmental perspective, comprehensive definitions that involve important components of its characteristics and motivations, and consideration of contextual factors such as the broader adjustment of the child and family.
2. Experimental studies of caregiver-child interactions in the presence of pets and other animals that focus on the development of specific caregiving versus cruel behaviours and more general constructs such as empathy.
3. Longitudinal studies of children showing cruel behaviours. Specifically, subtyping models of conduct disorder need to be tested in which the predictive power of early cruelty is compared with that afforded by more general aspects of the child's adjustment.
4. Intervention studies looking at the efficacy of reducing cruelty and increasing empathic and nurturant behaviours in children already showing signs of cruelty.
5. Larger studies examining the utility of community-based identification and intervention strategies for children at risk or already showing signs of cruelty, and the relationship of these to related issues of child abuse and domestic violence in families.
6. Continuation of retrospective studies of violent offenders using the design innovations exemplified by the study by Felthous and Kellert (1986).

In terms of substantive conclusions, the above review leads us to offer the following:

1. Child–animal relationships are a part of normal development that offer parents and children opportunities to learn about the nature of power-dependency relationships. On the healthy side, they offer opportunities to learn nurturant, caregiving, and empathic behaviours toward subordinates. Very little research, however, has been conducted into the developmental pathways associated with healthy child–pet relationships, or the microprocesses characteristic of parent–child interactions in this context.
2. Evidence is emerging that cruelty to animals will be best understood by adopting definitions and assessment strategies that embrace several dimensions, including the type and variety of cruel behaviours, the type and variety of targets (different species, different relationships to child), motives for the behaviour (e.g., causing pain versus attracting a caregiver's attention), the child's potential for empathic and remorseful responding, and evidence of enjoyment of the animal's pain.
3. Child–animal relationships characterised by cruelty are clearly deviant and commonly exist within a broader pattern of aggressive and antisocial behaviour. Retrospective studies of violent criminals produce findings consistent with the idea that early cruelty to animals is predictive of later violence. Prospective studies are limited to evidence that the presence of proactive aggression in childhood, of which cruelty may be a part, is predictive of later delinquency. Whether the presence of early cruelty has predictive power that is unique over and above predictions that could be made by other early behaviour problems (e.g., aggression to humans, truancy, stealing) has not been adequately studied.
4. There is little evidence that cruelty to animals exists in a triad of uniquely predictive behaviours (i.e., with firesetting and bedwetting).
5. A problem with the inclusion of animal cruelty into the DSM system is that no attempt is made to build in assessment of the various dimensions of cruelty that may characterise its unique prognostic features (i.e., variety of cruel acts and targets, deriving pleasure from the pain of others).
6. Cruelty to animals is clearly associated with a family context characterised by violence and abusive behaviour to subordinates. Thus, the child's behaviour may in part reflect behaviour toward animals and other members of the family they have observed, and behaviour they have experienced directed toward themselves. As such, the relationship of childhood cruelty to animals to family factors has both etiological significance, and important applicability in that childhood cruelty and/or the presence of abused animals offer an opportunity for identification of families and children in distress. However, it should be noted that this conclusion refers to groups of people, and cases of cruel children have been reported in apparently healthy families (see earlier section on biological factors).
7. The best of current theoretical formulations centre around two major propositions. The first are models that, derived from more general models of the learning of aggression in families, emphasise coercive family microprocesses within a social-learning framework (e.g., see Dodge et al., 1990; Patterson, 1982). The

second are developmental models, exemplified by Goldberg (1995), that emphasise the experience of abuse and humiliation, the resultant internalisation of shame, and the development of a generalised malevolence that expresses itself through the infliction of pain and humiliation onto others.

8. Little work has been done on community and clinical procedures for identifying and helping children who show cruelty to animals. Given the strong associations found between cruelty and other behavioural and family problems, it would be premature to set up clinical programs that specifically target cruel behaviour out of context from the child's general health and adjustment and family relationships. Several innovative approaches were noted, however, specifically, community interventions in which empathy toward animals can be targeted with potential benefits to levels of human empathy, and clinical interventions which utilise pets as vehicles for learning about empathy and nurturance.

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