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An evaluative review of theories related to animal cruelty

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Abstract

The two dominant theories relating to animal cruelty are critically reviewed. These are (i) the violence graduation hypothesis, and (ii) the deviance generalization hypothesis. The outcomes indicate very high consistency with the broader antisocial behavior and aggression literature which is large and very robust. This strongly supports the validity of the animal cruelty theory proposals. Proposals that animal cruelty is one of the earliest indicators of externalizing disorders and that it is a marker of development along a more severe trajectory of antisocial and aggressive behaviors are supported. The implications of these conclusions are discussed.

Keywords

Animal cruelty; human aggression; antisocial behavior; comorbidity, Violence Graduation Hypothesis, Deviance Generalization Hypothesis

This purpose of this paper is to provide an evaluative review of the two major theoretical perspectives related to the etiology of animal cruelty. These are the Violence Graduation Hypothesis and the Deviance Generalization Hypothesis. The paper will begin by providing a definition of animal cruelty.

Animal Cruelty Defined

Among the most often cited definitions of animal cruelty is that put forth Frank Ascione who defined it as “socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or the death of an animal” (Ascione, 1999; p. 51). Others (e.g., Felthous & Kellert, 1986) define *substantial cruelty to animals* as a behavior pattern that deliberately, repeatedly, and unnecessarily causes hurt to vertebrate animals in such a way that is likely to cause them serious injury. Brown (1988) defined cruelty as “unnecessary suffering knowingly inflicted on a sentient being (animal or human)” (p. 3) and argued that suffering may be of a physical type. That is, it may be the sensation of pain or it may be distress. It may also be psychological hurt such as would be the case with maternal deprivation.

Summarizing the different views on animal cruelty, Dadds, Turner, and McAloon (2002) noted that most definitions include a behavioral dimension that can include acts of omission (e.g., neglect) or acts of commission (e.g., beating) (c.f. Brown, 1988). Another key characteristic is indication that the behavior occurred purposely, that is, with deliberateness and without ignorance. An additional definitional criterion is that the behavior brings about physical and/or psychological harm. Incorporating these definitional criteria, Dadds (2008) defined animal cruelty

as a repetitive and proactive behavior (or pattern of behavior) intended to cause harm to sentient creatures.

Given the above considerations, the definition of animal cruelty that will be adopted herein is as follows:

Animal cruelty is behavior performed repetitively and proactively by an individual with the deliberate intention of causing harm (i.e. pain, suffering, distress and/or death) to an animal with the understanding that the animal is motivated to avoid that harm. Included in this definition are both physical harm and psychological harm. As with the literature on human aggression, animal cruelty at the more extreme end of the aggression dimension (e.g., burning whilst alive, torture – c.f., murder, rape, assault as compared to teasing, hitting, tormenting), should be considered to be a violent sub-type of animal cruelty.

This conceptualization of animal cruelty is relevant to the predominant theoretical perspectives that have been put forth regarding its etiology. These perspectives will be reviewed below.

Theoretical Perspectives of Animal Cruelty

The Violence Graduation Hypothesis

Several research studies published predominantly in the 1970's to 1990's investigated the proposal that animal cruelty in childhood is predictive of violence toward humans in adulthood. These studies (e.g., Felthous & Yudowitz, 1977; Kellert & Felthous, 1985; Merz-Perez, Heide, & Silverman, 2001; Ressler, Burgess,

& Douglas, 1988) typically involved examination of the childhood histories of adult criminals and psychiatric patients. Their findings provided support for a significant association between violence in adulthood and animal cruelty including severe animal torture and killing in childhood and adolescence.

In much of their work, Felthous and Kellert (Felthous, 1980; Felthous & Kellert, 1986; Kellert & Felthous, 1985) compared the retrospective reports of aggressive and non-aggressive criminals with those of non-criminals. For example, their 1985 study involved results based on personal interviews with 152 criminals and non-criminals (i.e. 32 aggressive criminals, 18 moderately aggressive criminals, 50 nonaggressive criminals, and 52 non-criminals). They found that 25% of aggressive criminals reported five or more incidents of animal cruelty during their childhood compared to less than 6% of moderately or non-aggressive criminals.

In 1987, these same researchers published a review of 15 controlled studies in which they examined “whether the scientific literature supports an association between a pattern of repeated, substantial cruelty to animals in childhood and later violence against people that is serious and recurrent.” (Felthous & Kellert, 1987; p. 710). On the basis of their review, they concluded that “The literature suggests an association between a pattern of cruelty to animals in childhood or adolescence and a pattern of dangerous and recurrent aggression against people at a later age.” (p. 716).

Based on such work, the Violence Graduation Hypothesis (VGH) was proposed. According to this hypothesis, animal cruelty may be a form of rehearsal for human-directed violence. In developmental terms, it has been proposed that animal cruelty in childhood is an incremental step toward violence directed at humans. The Humane Society of the United States (1997) coined the term the "First Strike" to refer to this association. In support of this proposal, animal welfare

societies in particular, have drawn upon cases of highly publicized serial killers who were abusive toward animals in their childhood.

Other research that has been argued to show support for the VGH includes the work by Tingle, Barnard, Robbins, Newman, and Hutchinson (1986). This study compared the childhood and adolescent experiences of rapists and pedophiles to determine whether the two types of offenders are best grouped separately. Although not the focus of the study, the results showed that there were high frequencies of animal cruelty in both groups with nearly half of the rapists and more than one quarter of the pedophiles having harmed animals as children.

In their study involving 45 violent and 45 non-violent inmates in a maximum security prison, Merz-Perz, et al. (2001) found that violent inmates reported animal cruelty in their childhoods at a rate that was three times greater than that reported by the non-violent inmates. When looking at companion animals as compared to cruelty toward other animals, the differences between the two groups were even greater with 26% of the violent group reporting companion animal cruelty compared to 7% of the non-violent group.

In a review related to a more specifically defined sample of 11 youth involved in nine incidents of multiple school shootings, Verlinden, Hersen, and Thomas (2000) found that of the 11 perpetrators involved, five (45%) had histories of alleged animal cruelty. Also in relation to a very specifically defined sample of convicted serial murderers, Wright and Hensley (2003) reported that out of 354 cases of serial murder, 75 (21%) had committed cruelty to animals during their childhood.

In an examination involving 261 inmates from medium and high security prisons, Tallichet and Hensley (2004) found support for the proposal that repeated acts of animal cruelty in childhood or adolescence are predictive of subsequent

violent crime. In a replication of this study, Hensley, Tallichet, and Dutkiewicz (2009) examined survey data of 180 inmates from a medium and maximum security prison. As predicted, they found that recurrent acts of childhood animal cruelty were predictive of later recurrent acts of violence toward humans.

In other research, Gleyzer, Felthous, and Holzer (2002) compared 48 criminal defendants with a history of substantial animal cruelty and a matched sample of defendants without a history of animal cruelty, to investigate whether animal cruelty was associated with a diagnosis of Antisocial Personality Disorder in adulthood. They found support for the hypothesized relationship between a history of childhood cruelty to animals and a diagnosis of Antisocial Personality Disorder in adulthood. They also found that a diagnosis of Antisocial Personality Disorder or the presence of antisocial personality traits were statistically significantly more prevalent in the animal cruelty group.

In addition to the research investigations examining the link between childhood animal cruelty and adult violence toward humans, there is support for the relationship in the histories of adults who are habitually violent such as multiple murderers and serial killers. These data are reviewed below.

Federal Bureau of Investigation Work

According to Brantley, now retired from the Federal Bureau of Investigation's Investigative Support Unit, animal cruelty is prominent in the histories of people who are habitually violent. Their histories also reveal violence toward other children and adults, as well as the destruction of property (Lockwood & Church, 1996). The connection between cruelty to animals and aggression against humans was first acknowledged by the Federal Bureau of Investigation (FBI) in the

late 1970's when 36 multiple murderers were interviewed. Their histories also reveal violence toward other children and adults, as well as the destruction of property. Brantley (2007) provided a checklist of risk indicators for future violence. These include characteristics that are descriptive of what are otherwise referred to as externalizing disorders. These disorders are defined by personality traits that are disinhibitory in nature. Examples include low frustration tolerance, aggression, impulsivity, irritability, arrest history, early adjustment problems, juvenile delinquency, chemical abuse, alcohol abuse.

Cited as support for the Violence Graduation Hypothesis are a number of high profile mass and serial murder cases (Petersen & Farrington, 2007). These include Kip Kinkel and Luke Woodham, who were each responsible for school shootings. Both were also known to have been cruel to animals. The highly publicized Columbine high school shootings carried out by Eric Harris and Dulan Klebold, resulted in the killings of 12 students and a teacher. More than 20 other people were also injured. Both males were known to brag about mutilating animals (PETA, 2003). In April, 1996, Martin Bryant was responsible for one of Australia's most terrible mass murders. He killed a total of 35 people in a 19 hour rampage in Port Arthur, Tasmania. At age 11 years, he was found to have tortured and harassed animals. He was also described as tormenting his baby sister. Animal cruelty is also highly prominent in the histories of serial killers (Lockwood & Hodge, 1998).

Although the validity of accounts of serial killers and mass murderers can be criticized on the basis that they are second hand accounts and that they are retrospective nature, it is noteworthy that they have substantial commonalities including a strong suggestion of the presentation of Callous-Unemotional traits and pathological behavior.

Evaluation of the Violence Graduation Hypothesis

The research and other data cited as support for the VGH has been criticized as being methodologically limited (e.g., Beirne, 2004). The proposed limitations include that the research tends to be retrospective in nature and is primarily based on the self-reports provided by institutionalized individuals. Self-report has the problem of potentially being biased and retrospective reporting has the limitation of possible recall error. Researchers have called for longitudinal research that follows children through to adulthood in order to soundly investigate the hypothesis. It has also been argued that research is needed to rule out the possibility that the relationship between animal cruelty and human aggression is the result of other variables or a third shared factor (Flynn, 2011) such as, for example, antisocial traits.

Perhaps the most significant limitation is that the majority of studies have investigated the cruelty connection in highly aggressive and incarcerated criminals, thereby limiting the generalizability of the hypothesis. Consequently, within this theoretical framework, there is the tendency to ignore possible correlations between animal cruelty and other less severe forms of antisocial behavior or criminal behavior (c.f., Arluke, Levin, Luke, & Ascione, 1999).

In a recent study (Alys, Wilson, Clarke, & Toman, 2009), the problem of restricted sampling was addressed by comparing three groups of male adults. The first group comprised an incarcerated sample of male homicide sex offenders with a mean age of around 35 years, the second group comprised 20 male sex offender outpatients aged on average around 45 years, and the third group comprised 20 male students enrolled in an introductory psychology university course with an average age of 35 years. Participants responded to questions about childhood or adolescent

cruelty to animals and about other antisocial behavior including stealing, destruction of property and cruelty to children. They also responded to questions about child abuse experiences and paternal alcoholism. The results revealed that all three groups significantly differed from each other. The homicide sex offenders committed significantly more animal cruelty in their younger years compared to each of the other two groups. The differences were particularly marked between the homicide sexual offenders (nearly all of whom reported being cruel to animals) and the university students (none of whom reported animal cruelty). There was also a significant difference between the non-homicide sex offenders and the university students with the former group reporting animal cruelty during their childhood and adolescent years. Although this study addressed the limitation of biased sampling, it is based on the criticized methods of self-report and retrospective reporting.

Despite its critics, the VGH has continued to attract research interest (Hensley, Tallichet, & Dutkiewicz, 2009) with several more recent studies arguing support for the hypothesis (e.g., Merz-Perez et al., 2001; Merz-Perez & Heide, 2004; Tallichet & Hensley, 2004; Verlinden et al., 2000; Wright & Hensley, 2003). However, it is noteworthy that, as recommended by Felthous and Kellert (1987), recent work has highlighted the importance of assessing recurrent, rather than isolated, acts of childhood animal cruelty when examining the association between childhood animal cruelty and later acts of interpersonal violence. It is also noteworthy that such a position is consistent with the definition of Conduct Disorder given in the Diagnostic and Statistical Manual of Mental Disorders. In the manual, it is stated that there must be a repetitive and persistent pattern of at least one criterion behavior from those listed (one of which is “has been physically cruel to animals”) over a period of six months.

Also of relevance are the research findings relating to childhood-onset versus adolescent-onset of antisocial behavior which have indicated that individuals in the childhood-onset group present with the more severe forms of antisocial behavior. Indeed, consistent with claims made by the VGH, most violent individuals with a childhood-onset of antisocial behavior have a developmental history characterized by an escalation in the severity of aggression (e.g., Farrington, 1991; Loeber & Hay, 1997). Also of relevance, the childhood-onset group has been referred to as the life-course persistent group.

Moreover, it is within the child-onset group that children with Callous-Unemotional traits are generally classified. Callous-Unemotional traits form a prominent part of Psychopathy character traits in adults (Cleckley, 1976; Hare, 1993). Individuals characterized by Callous-Unemotional traits lack a sense of guilt and empathy, and callously use others for their own gain (Frick & White, 2008). At least three dimensions have consistently emerged in the conceptualization of Psychopathy in adults. They are (i) Callous-Unemotional traits, (ii) an interpersonal style characterized by arrogance as well as deceitful and manipulative behavior, and (iii) an impulsive and irresponsible behavioral style that includes poor planning and a tendency toward boredom or need for stimulation.

Of note, Callous-Unemotional traits have demonstrated stability from childhood to early adolescence, and adulthood (Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007). Particularly noteworthy is the finding that Callous-Unemotional traits in childhood are predictive of later antisocial behavior and Psychopathy (Blonigen, et al., 2006; Frick & Viding, 2009).

Given that the majority of studies claiming support for the VGH have been based on institutionalized individuals who have committed aggressive or violent

crimes, it is most likely that these individuals can best be classified as being on the life-course persistent trajectory. It is therefore reasonable to argue that the majority of VGH studies are reporting the same pattern of life-course persistent aggression and escalation typical of the severe end of the antisocial spectrum as has been consistently documented in the broader antisocial behavior literature (Farrington, 1991; Loeber & Hay, 1997).

Also of note, Frick et al., (1993) found that along with fighting (first appearing at average age of 6 years), bullying (7 years) and assaulting (7.5 years), animal cruelty (6.5 years) was one of the earliest appearing indicators of Conduct Disorder. Most importantly, Frick and colleagues found that the “*Cruelty to Animals*” item was one of several items that discriminated between individuals falling onto the destructive versus non-destructive end of the Conduct Disorder severity dimension. Of relevance to the current discussion, research outside of VGH supports the argument that childhood animal cruelty is one of several significant markers of the development of a more aggressive or antisocial individual. For example, childhood animal cruelty has been found to significantly discriminate between clinical and sub-clinical conduct problem behaviors (Gelhorn et al., 2007). Children diagnosed as having Conduct Disorder who are cruel to animals have been found to have more severe conduct problems than children diagnosed with Conduct Disorder who are not cruel to animals (Luk, Staiger, Wong, & Mathai, 1999). Consistent findings were reported in a study involving 131 children aged 6 to 13 years, conducted by Dadds, Whiting, and Hawes (2006). The study findings suggested that cruelty to animals may be an early manifestation of antisocial behavior shown by a subgroup of children who develop conduct problems associated with low empathy and Callous-unemotional traits. In other words, cruelty to animals

during the childhood years may be a marker for the development of more severe conduct problems.

In sum, the criticisms directed at this research have in large part, caused the validity of this theory to be questioned. However, the review above highlights that the findings of the research conducted within this framework are in fact consistent with much of the general aggression research, particularly supporting conclusions based on individuals classified at the more severe end of the antisocial spectrum, including those who display Callous-Unemotional traits. The argument that violence graduates with age from less to more severe for people who show aggressive behaviors early in development is consistent with research looking at the childhood-onset group of aggressive individuals. Those individuals with childhood-onset aggression who also display Callous-Unemotional traits are most likely to display a life-course trajectory and to engage in behaviors characteristic of the more severe end of the antisocial spectrum.

Thus, the argument that these individuals graduate from animal abuse in childhood to human violence in adulthood is consistent with the findings related to the behaviors of individuals at this more severe end of the antisocial spectrum. Based on the general aggression literature and the research specifically examining the VGH, it is reasonable to propose that a pattern of repeated animal cruelty in young children is one behavioral marker, and perhaps a particularly important behavioral marker, of the developmental trajectory of life-course persistent and escalating aggression.

Nevertheless, the pattern of association between animal cruelty and human-directed criminal and antisocial behavior is broader than that depicted by the VGH.

There is evidence that many human directed antisocial behaviors occur concurrently in time with animal cruelty behaviors. There is also evidence that animal cruelty is associated with antisocial behaviors at the lower severity end of the spectrum including, for example drug abuse and property damage. Whilst the VGH does not address these associations, the second framework to be discussed in the next section does address these associations.

The Deviance Generalisation Hypothesis

The second framework of focus is the Deviance Generalization Hypothesis (DGH). The argument put forth within this hypothesis is consistent with the conceptualization of aggression and antisocial behavior. Over the past decade, it has become increasingly clear that aggressive behaviors mostly occur within the context of other antisocial behaviors including lying, stealing, destruction of property, burglary, sexual assault and other violent crimes (Hartup, 2005). Given the co-occurrence between aggressive behavior, most notably physical aggression with other forms of antisocial behavior such as illicit drug use, it has been determined necessary to broaden the focus of research in the area and include aggression within the broader class of antisocial behaviors (Dodge, Coie, & Lynam, 2006). Accordingly, Rutter (2003) proposed that an adequate conceptualization of the antisocial behavior construct must encompass a large range of socially disapproved behaviors. This is most strongly true at the severe end of the antisocial behavior spectrum (Dishion, French, & Patterson, 1995; Farrington, 1991; Lynam, 1996).

In contrast to research examining the VGH, support for the DGH also comes from research that has *not* targeted institutionalized or aggressive subtypes of criminal offenders. This research is consistent with current thinking that aggressive

behaviors including animal cruelty constitute a subset of behaviors classified within the antisocial behavior spectrum (Frick and Viding (2009).

Of particular importance when evaluating the validity of the DGH is the finding from the broader antisocial behavior literature that the greater the frequency and variety of antisocial acts, the stronger the prediction that the individual is engaged in more serious forms of antisocial behavior, including violence (Dishion et al., 1995; Farrington, 1991). This has specific relevance to the argument and research finding that repeated acts of animal cruelty are associated with violence that is serious and recurrent (e.g., Felthous & Kellert's, 1987). It is also consistent with findings that individuals who are cruel to animals are more likely than those who are not to be engaged in a variety of other crimes (cf. Arluke et al., 1999; Gullone, 2012; Gullone & Clarke, 2008).

The literature relating to the DGH that is reviewed below has been organised into a number of sections. These include work related to (i) the conceptualisation of Conduct Disorder, Antisocial Personality Disorder and Psychopathy, (ii) empirical support for the co-occurrence between animal cruelty and other criminal behaviors, (iii) empirical support for the co-occurrence between family violence and animal cruelty, and finally (iv) research that has examined the links between bullying and animal cruelty as well as that examining the important role played by the witnessing of aggression.

Conduct Disorder, Antisocial Personality Disorder, and Psychopathy

As previously noted, diagnostic criteria for Conduct Disorder in the Diagnostic and Statistical Manual (third edition) (American Psychiatric Association, 1987) and subsequent revised versions include animal cruelty as one diagnostic

criterion. It is particularly noteworthy that, in their meta-analysis of child conduct problem behaviors, Frick et al., (1993) reported a median age of 6.5 years for the occurrence of the first incident of animal cruelty along with other aggressive behaviors (i.e., fighting, bullying, assaulting others), thus indicating that animal cruelty appears as one of the earliest indicators of Conduct Disorder. It is listed as such in the most recent version of the Diagnostic and Statistical Manual of Mental Disorders (i.e. DSM-IV-Test Revised version) (American Psychiatric Association, 2000). Further, as many as 25% of children diagnosed with Conduct Disorder display cruelty to animals. As previously noted, cruelty to animals was one of several items that discriminated between a destructive/non-destructive dichotomy with animal cruelty falling within the destructive category (Frick et al., 1993).

In other research, Mellor, Yeow, Mamat, & Mohd Hapidzal (2008) conducted an investigation with 379 Malaysian children aged 6 to 12 years enabling examination of the relationship between animal cruelty and disordered behavior in another culture. As has been found in other research (e.g., Ascione, 1993; Dadds, Whiting, & Hawes, 2006; Frick et al., 1993), the results indicated that children's animal cruelty was associated with externalizing difficulties including Conduct Disorders and hyperactivity.

In their analysis of a National Epidemiological Survey data set including a U.S. nationally representative sample of 43,093 respondents, Gelhorn, et al., (2007) found that cruelty to animals (assessed with the item "Hurt or be cruel to an animal or pet on purpose") significantly discriminated between those with clinical and sub-clinical conduct problem behaviors. Specifically, 5.5% of males in the sub-clinical group compared to 18% of males in the Conduct Disorder group endorsed the item of

animal cruelty. The comparative statistics for females were lower but equally discriminating (i.e. 2.2% versus 6.2%).

Consistent findings were reported by Luk et al. (1999), in their comparison study of 141 clinic-referred children presenting with at least one definite Conduct Disorder symptom apart from animal cruelty, and a community sample of 36 children, all aged between 5 and 12 years. Forty children in the clinic-referred group (out of 141 – 28%) compared to one child from the community sample (3%) were rated as “*sometimes*” or “*definitely*” being cruel to animals. As noted earlier, children in the animal cruelty group were found to have more severe conduct problems than the comparison group, and were more likely to be male.

Also, the older children in the animal cruelty group had a highly elevated self-perception. Luk and colleagues proposed that the elevated self-worth of the children who were cruel to animals was suggestive of the presence of Callous-Unemotional traits (c.f., Frick, O’Brien, Wootton & McBurnett, 1994) given that such traits manifest as behavior characterized not only by lack of guilt and empathy but also by superficial charm. This finding is consistent with research by Frick and Dickens (2006) with antisocial youth. In their research they also found that Callous-Unemotional Traits were predictive of a higher severity and stability of aggressive and antisocial behavior (Frick & Dickens, 2006). In contrast, antisocial youth without Callous-Unemotional traits showed less aggressive behavior.

Evidence that Callous-Unemotional traits and Psychopathy maybe be particularly predictive of animal cruelty behaviors is convergent with findings of research that has investigated relationships between animal cruelty and other criminal behaviors. According to Lynam (1996), Psychopathy is characterized by more crimes than is true for the average criminal offender and also by more types of

crimes. Such findings are reflective of the criminal behavior profiles of people who are cruel to animals. Such a profile is also reflective of particularly severe and violent antisocial adults (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006).

In a controlled study aimed at identifying risk factors for abuse and interpersonal violence among an urban population, Walton-Moss, Manganello, Frye, and Campbell (2005) compared 845 women who had experienced abuse in the past two years with a control group of non-abused women from the same metropolitan area. Risk factors for the perpetration of interpersonal violence included being a high school drop-out, being in fair or poor mental health, having a problem with drugs or alcohol, and companion animal cruelty.

In the more recent investigation by Vaughn and colleagues (2009), the correlates of lifetime animal cruelty including Conduct Disorder and other disorders, were examined. The 2001-2002 data set comprised data from a nationally representative sample of 43,093 non-institutionalized United States residents aged 18 years or older. Data were collected via interview by trained interviewers using a validated interview schedule (Grant, Harford, Dawson, & Pickering, 1995).

Among the socio-demographic variables assessed, being male predicted a higher prevalence of animal cruelty as did being younger and from a lower socio-economic background. The findings showed that the prevalence of antisocial behaviors was higher among those with a lifetime history of animal cruelty compared to those without such a history. The most prevalent antisocial behaviors among those who were cruel to animals were crimes including robbing or the mugging of another person. Other more prevalent behaviors were setting fires on purpose, harassing and threatening someone, and forcing someone to have sex.

In additional analyses, the data revealed that animal cruelty was uniquely associated with disorders characterized by low self-control including lifetime alcohol use, pathological gambling, Conduct Disorder, and a number of personality disorders including Obsessive-Compulsive Personality Disorder, and Histrionic Personality Disorder. Indeed, the most common psychiatric disorders among people with a history of animal cruelty were Conduct Disorder, Antisocial Personality Disorder or a family history of Antisocial Personality Disorder, and lifetime nicotine dependence, as well lifetime alcohol use. Supporting the role played by developmental family experiences, animal cruelty was also associated with a family history of antisocial behavior.

Criminal Behavior and Animal Cruelty

The research by Coston and Protz (1998) is supported by other research showing a correlation between criminal behaviors and animal cruelty (e.g., Vaughn et al., 2009). These researchers sought to examine the overlap between animal cruelty and other crimes by cross-referencing cases of individuals in a county in North Carolina who had been investigated for animal cruelty in 1996 with 911 calls two years earlier and one year later. They found 1,016 matches for crimes investigated two years earlier than 1996. The resulting reports were for sexual assaults (40%), mental health requests (23%), assaults (22%), animal cruelty (6%), missing person (5%), and domestic violence (4%). One third had been arrested for criminal offences other than animal cruelty during this earlier period.

The number of matches one year later was 754 and the reports related to creating a disturbance (32%), domestic violence (31%), assault (16%), missing person (6%), man with a gun (5%), animal cruelty (4%), mental health (2%), sexual

assault (2%), and drugs (1%). One third had been arrested and 10% were convicted for assault, domestic violence, and drug possession.

Although the aim of their study was to examine the VGH, Arluke et al. (1999) found support for the DGH. As with the studies described above, they investigated the relationship between criminality and animal cruelty. To overcome some of the limitations of past research, they obtained their data from official records of criminality rather than through self-report from institutionalized individuals. They also included a non-criminal comparison group. Their method included identifying adults who had been prosecuted for at least one incident of animal cruelty between 1975 and 1986 and their data were extracted from the records of the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA).

They defined and identified cruelty as cases "where an animal has been intentionally harmed physically (e.g., beaten, stabbed, shot, hanged, drowned, stoned, burned, strangled, driven over, or thrown)." (p. 966). This resulted in the identification of 153 participants of whom 146 were male. The sample had a mean age of 31 years, 58% of whom were aged younger than 21. With regard to the demographics of the abused animals, the largest proportion was dogs (69%), followed by cats (22%) and the remaining were birds, wildlife, horses or farm animals. Their control group comprised individuals matched to the animal cruelty group on sex, socioeconomic status, age, and street of residence in the same year as the cruelty incident. The details for the control group were obtained from municipal voting lists. Following this, computerized criminal records were used to track criminal records from the state's criminal justice records system. This was done for both groups. Criminal offences were classified into five groups as (i) violent, (ii) property-related, (iii) drug-related, (iv) public disorder, and (v) other.

The study results indicated that animal abusers were significantly more likely than non-animal abusers to be involved in other forms of criminal behavior, including violent offences. As many as 70% of those who were cruel to animals also committed at least one other offence compared with 22% of the control group participants. The differences ranged from 11% for the control group and 44% for the abusive group on property-related crimes to 12% for the control group and 37% for the abusive group on public disorder-related crimes. For violent crimes, the two groups differed substantially (7% and 37% for the control and abusive groups, respectively).

Based on their findings, the authors concluded that animal cruelty appears to be one of many antisocial behaviors displayed by individuals ranging from property to personal crimes. Of significance is the fact that this research study included a non-institutionalised sample of people who were cruel to animals. Thus, the finding that a single known act of animal cruelty was predictive of participation in other criminal offences is particularly compelling.

To examine whether Australian data would support Arluke et al.'s findings of deviance generalization, Gullone and Clarke (2008) obtained data from the Statistical Services Division of Victoria Police for *all recorded offences* in Victoria, Australia for the years 1994 to 2001 (inclusive). Data for the equivalent timeframe (classified into the same categories) were also separately obtained *only for alleged animal cruelty offenders*.

The data for *all alleged offenders* revealed that although offences against the person constituted a relatively small proportion of the total number of crimes at an average of 7.7% of all crimes over the eight-year period, when examining the percentage *only for the alleged animal cruelty offenders*, the percentage was

markedly higher at 25% (see the table below). This category of offences included such crimes as homicide, rape, assault, abduction/kidnap, and harassment. Importantly, these statistics are remarkably similar to those reported by Arluke et al., (1999) as described above.

There were also differences between *all alleged offenders* and *alleged animal cruelty offenders* for the remaining three categories but they were not as great. Of note, the category of “Offences against property” is the only one that has a higher percentage for all offenders as compared to only animal cruelty offenders (see Table 1 below).

From these data it appears that there is a greater likelihood that people alleged to have been cruel to animals will engage in offences against the person, including violent crimes, when compared to all alleged offenders. They are also more likely to be involved in miscellaneous offences (i.e., “Other Offences”) and drug related offences (“Drug Offences”). The “Drug Offences” difference is not surprising given the reported findings of Vaughn and colleagues (2009) which showed that among the most prevalent antisocial behaviors of those who were cruel to animals were “lifetime nicotine dependence”, as well as “lifetime alcohol use disorder”.

Place Table 1 about here

Of note, when broken down by age and sex, the data across the different crime categories showed that for *all alleged offenders*, as well as for *only animal cruelty offenders*, the offenders were characteristically male. Also, the most frequent ages for all alleged offenders during the years recorded were between 12 and 35 years, for both males and females, but particularly for males. For both males and

females the peak ages were between 18 and 25 years. When examining age and sex trends only for alleged animal cruelty offenders, the same peak in frequency between the ages of 18 and 25 years was found, for both males and females. Thus, as is consistent with reported findings in the broader antisocial behavior literature, there were markedly more males identified among all alleged offenders and also among alleged animal cruelty offenders only. Males were also overrepresented across all age categories when looking at the whole data base and also at only the animal cruelty data base. The particular importance of these statistics is their demonstration of demographic similarity between adults who engage in criminal behaviors of various types, particularly violent behaviors, and adults who are cruel to animals. Such data not only provide support for a link between antisocial behavior, particularly aggression directed at other people and that directed at animals, they also indicate that animal cruelty can be usefully conceptualized within a human aggression/antisocial behavior framework.

On the basis of the above work, it can be concluded that there is substantial empirical evidence that animal cruelty co-occurs with other antisocial or criminal behaviors. This finding is consistent with evidence from the broader antisocial behavior literature that aggressive behaviors mostly occur within the context of other antisocial behaviors including lying, stealing, destruction of property, burglary, sexual assault and other violent crimes (see Gullone, 2012). Additionally, the work by the FBI reported in the previous section provides support for co-occurrence at the more extreme end of the antisocial behavior continuum.

Family Violence and Animal Cruelty

Additional support for the DGH comes from research demonstrating comorbidity between animal cruelty and domestic or family violence. One of the most consistently replicated findings in the animal cruelty literature is a significant co-occurrence between family or domestic violence and animal cruelty. This research has found that more than 50% of all abused women have companion animals, and in as many as 50% of cases, the animals are abused by the perpetrators of the domestic violence. Motivations for the abuse include hurting and/or controlling the women or their children. The research has also consistently found that concern for the safety of their companion animals keeps many women (and their children) from leaving or staying separated from their abusers. It can be argued that animal cruelty when it occurs within the family home, is a symptom of a deeply dysfunctional family (Lockwood & Hodge (1986).

One of the earliest studies to investigate the relationship between family environment and animal cruelty was the UK study by Hutton (1983) who reported RSPCA cruelty data for a community in the England. The data showed that out of 23 families with a history of animal cruelty, 82% had also been identified by human social services as having children who were at risk of abuse or neglect.

In more recent years, several studies have investigated the relationship between family violence and animal cruelty (e.g., Ascione, 1998; Ascione, et al., 2007; Daniell, 2001; Faver & Cavazos, 2007; Flynn, 2000; Quinlisk, 1999; Volant, Johnson, Gullone & Coleman, 2008). These studies have been conducted across several countries including the United States, Canada, and Australia. Of note, the findings are remarkably consistent across the studies despite their differences in parameters such as country where the study was conducted, sample size and

methodology used. Findings include that between 11.8% and 39.4% of women have reported that the perpetrator *threatened to* hurt or kill their companion animals. Between 25.6% (Flynn, 2000) and 79.3% (Quinklish, 1999) of women reported that the perpetrator had *actually* hurt or killed their companion animal(s). Many of the studies examining animal cruelty within abusive families have also reported that between 18% (Ascione, 1998) and 48% (Carlisle-Frank, Frank, & Nielsen, 2004) of women have delayed leaving their violent situation out of fear that their companion animal(s) would be harmed or killed if they were to leave.

A limitation of these studies, with few exceptions (i.e. Ascione et al, 2007; Volant et al, 2008), is that they did not include a comparison group of women who were not in a violent family situation. In a study by Ascione and colleagues, 5% of non-abused women reported companion animal cruelty and in Volant's study, 0% reported companion animal cruelty. The latter study involved a group of 102 women recruited through 24 domestic violence services in the state of Victoria and a non-domestic violence comparison group (102 women) recruited from the community. The findings included that 46% of women in the domestic violence sample reported that their partner had *threatened to* hurt or kill their companion animal compared with 6% of women in the community sample.

The focus of studies examining the relationship between family violence and companion animal cruelty has predominantly been on (i) determining the prevalence of companion animal cruelty within physically violent relationships and (ii) the prevalence of women who delay leaving their violent relationship for fear of harm befalling their pets in their absence, as well as the length of the delay. A smaller number of studies have investigated motivations underlying the companion animal cruelty in the context of family violence. On the basis of these studies, it appears that

the predominant motivation is one of control. For example, in his qualitative study involving 10 women seeking refuge from domestic violence, Flynn (2000) found that batterers use animal cruelty to intimidate, to hurt or to control their partners.

However, not all batterers are cruel to animals. To determine whether batterers who are cruel to their companion animals differ from those who are not, Simmons and Lehmann (2007) investigated the reports of 1,283 female companion animal owners who were seeking refuge from partner abuse. They found that batterers who were cruel to animals (not all battered animals were companion animals) used more forms of violence compared to those who were not. Specifically, batterers who were cruel to companion animals had higher rates of sexual violence, marital rape, emotional violence, and stalking. They also used more controlling behaviors including isolation, male privilege, blaming, intimidation, threats, and economic abuse. The differences were even greater for those who killed a companion animal compared to those who did not abuse animals.

A study by Loring and Bolden-Hines (2004) involved 107 women who had been emotionally and physically abused and who were referred to a family violence centre. Each of the women had committed at least one illegal behavior and 72 (62%) of the women had owned companion animals in the previous year or during the year in which the study was conducted. As many as 54 (75%) of the 72 women reported actual or threatened companion animal cruelty and of these 54 women, 24 reported that they had been coerced to commit an illegal act through threats or actual harm to their companion animal(s).

A more recent study by DeGue and DeLillo (2009) which involved 860 university students from three US universities showed that around about 60% of participants who witnessed or perpetrated animal cruelty as a child also

retrospectively reported experiences of child maltreatment or domestic violence. The study results also showed that those who had been sexually or physically abused or neglected as children were those most likely to report that they had been cruel to animals as children.

Bullying and Animal Cruelty in Youth.

In addition to being linked with abusive childhood experiences, animal cruelty has been shown to co-occur with bullying behaviors. Reinforcing their link, both animal cruelty and bullying have been related to later antisocial behaviors and Antisocial Personality Disorder (Gelhorn, et al., 2007). Not surprisingly, there are also conceptual similarities between animal cruelty and bullying behaviors. These include overlapping definitional criteria. For example, bullying has been defined as behavior that is intended to hurt the victim, and that is characterised by a power imbalance, an unjust use of power, enjoyment by the aggressor and a general sense of being oppressed on the part of the victim (Rigby, 2002). It is generally agreed that a definition of bullying needs to include an intention to inflict either verbal, physical or psychological harm, a victim who does not provoke the bullying behaviors, and occurrences in familiar social groups (Baldry, 1998; Baldry & Farrington, 2000; Griffin & Gross, 2004; Gumpel & Meadan, 2000).

Whilst explicit in definitions of bullying but not in definitions of animal cruelty, there is a clear power imbalance where the perpetrator is more powerful than the victim and uses this power to inflict physical, emotional or psychological harm on the victim. Also, both animal cruelty and bullying behaviors are predominantly observed in male populations. Males have rates of animal cruelty that are four times higher than those of females (Flynn, 1999b) and are more likely than females to

engage in bullying behaviors (Baldry, 1998; Bosworth, Espelage, & Simon, 1999; Smith & Myron-Wilson, 1998; Veenstra et al., 2005). Further suggestive of overlapping processes between animal cruelty and bullying is their appearance within a close developmental timeframe (Frick et al., 1993). Despite this strong conceptual overlap, animal cruelty and bullying behaviors have for the most part been researched separately.

The exceptions include a study by Baldry (2005), who examined the prevalence of animal cruelty, bullying behaviors, and being a victim of bullying in an Italian sample of children and adolescents aged 9 to 12 years. Her results showed that girls and boys who had engaged in direct bullying behaviors were twice as likely to have been cruel to animals compared with their non-bullying peers. Engagement in animal cruelty by boys was predicted by their direct victimisation at school and indirect bullying, while engagement in animal cruelty by girls was predicted by their exposure to animal cruelty and by their experience of verbal abuse by their fathers.

Involving a school-based sample of 249 adolescents (105 males, 144 females) ranging in age from 12 to 16 years, Gullone and Robertson (2008) investigated relationships between self-reported animal cruelty and bullying. Significant positive relationships were found between bullying and animal cruelty. Both behaviors were also found to correlate significantly with bullying victimisation, witnessing of animal cruelty and family conflict.

A 2007 study by Henry and Sanders involved 185 psychology undergraduate university males. The researchers justified their decision to include only males in their study on the basis that rates of animal cruelty are substantially lower among females. Applying a retrospective reporting methodology, the study aimed to investigate the relationships between self-reports of animal cruelty and bullying as

well as being a victim of bullying. They also investigated whether the relationship varied depending upon the frequency of animal cruelty or the individual's classification of bully, victim or bully/victim. They hypothesised that the relationship between bullying and animal cruelty would be strongest for those who had been involved in multiple acts of animal cruelty as compared with isolated acts. They also hypothesised that the relationship would be strongest for those in the bully/victim group given research suggesting that this group has the highest level of maladjustment.

The findings indicated a marked distinction between those who had been involved in a single versus multiple acts of animal cruelty. Those who reported multiple acts of animal cruelty were more likely to be classified into the bully/victim group compared to those involved in a single act of animal cruelty. The authors concluded that their findings support the proposal that animal cruelty may sometimes constitute displaced aggression. They also concluded that high rates of bullying and of victimisation are predictive of multiple acts of animal cruelty and vice versa.

In summary, research has investigated the co-occurrence of a number of antisocial behaviors, including aggressive or violent behaviors. Such research has provided support for the DGH. Disordered functioning characteristic of Conduct Disorder, Antisocial Personality Disorder, and Psychopathy has been found to include animal cruelty amongst other aggressive behaviors. Behaviors that are characteristic of disordered functioning have also been found to co-occur with animal cruelty. For example, children who bully are also more likely to be cruel to animals. People who commit crimes, particularly violent crimes including partner or child abuse, are more likely to be cruel to animals compared to people who have not committed these other crimes. At the more extreme end of the antisocial behavior

continuum, FBI work has shown that animal cruelty is a prominent behavior in the profiles of violent criminals.

Conclusion

In conclusion, this paper has reviewed the two predominant frameworks for understanding the connections between animal cruelty and human aggression, violence and antisocial behavior more generally. By reviewing the relevant research, it has been demonstrated that the VGH and the DGH are valid proposals that are supported by the empirical work that has investigated them. Moreover, by taking into account findings from the broader antisocial and aggressive behavior literature, it has been demonstrated that many of the criticisms that have been directed at the animal cruelty research, particularly the VGH research, do not compromise the validity of the reported findings. Indeed, the findings of the animal cruelty research are overwhelmingly consistent with findings from the extensive and solid evidence provided by the broader aggression and antisocial behavior literature. As is currently accepted, aggressive and violent behaviors commonly co-occur with other antisocial behaviors. It follows that animal cruelty is an aggressive and violent behavior that cannot logically be separated from other aggressive and violent behaviors, and indeed from other deviant behaviors.

It can therefore be confidently concluded that, in addition to being one of the earliest indicators externalizing disorders including Conduct Disorder, animal cruelty is a marker of development along a more severe trajectory of antisocial and aggressive behaviors (Frick et al., 1993; Luk et al., 1999). Thus, its early identification provides an optimal opportunity for engaging preventative strategies. As such, it is of significant importance for health care professionals.

Furthermore, the significant co-occurrence between animal cruelty and other antisocial behaviors indicates that animal cruelty is yet another marker of antisocial or aggressive behavior that can be classified along the externalizing behavior spectrum. It logically follows that law and policy makers must act upon this vast body of research. Laws need to be developed that acknowledge the relationship and similarities between different types of abuse and violence, including animal cruelty. Based on the empirical information available, there exists no possible justification for relegating animal cruelty offences to the “less important” category. Moreover, there is no justification for punishing violent criminals significantly more leniently or, as often happens, not at all, if the victim of the violent crime is an animal as opposed to a human being. Indeed, there is a high statistical probability that the victims of the violent or antisocial individual are both animal and human. Thus, recognition of the importance of animal cruelty will undoubtedly benefit, not only the animal victims but the whole of society.

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Table 1.

Comparative percentages of crimes by category for all alleged offenders and only alleged animal cruelty offenders based on Victoria Police data for the years 1994 to 2001.

Category of Offence	All Offenders	Animal Cruelty Offenders
Offences against the person	7.7	25.0
Offences against property	80.7	48.4
Drug offences	3.8	6.7
Other offences	7.7	19.8

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