Risk Factors and Correlates of Hurting Animals by Children

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RISK FACTORS AND CORRELATES OF HURTING ANIMALS BY CHILDREN

A dissertation

by

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ABSTRACT

This dissertation is a secondary analysis of a preexisting dataset, the Longitudinal

Studies of Child Abuse and Neglect (LONGSCAN), Assessments 0-4 produced by the

National Data Archive on Child Abuse and Neglect (NDACAN) located in the Family

Development Center at Cornell University (2001). This is a large scale dataset

employing five sites across the United States. Three sites are used: the Northwest, South

and Southwest as they contain the largest numbers exhibiting the behavior of interest,

hurting animals by children. These sites have sample sizes of 261, 221 and 327 children,

respectively. The samples were chosen for varying levels of risk for child abuse and

neglect; data collection began in 1991 and is ongoing. The children were born between

1989 and 1996. The number of children who hurt animals at each site was as follows: 16

(South Site), 25 (Northwest Site) and 36 (Southwest Site). Hypotheses were that more

males than females would hurt animals; females who hurt animals would show more

internalizing problems than males who hurt animals; males who hurt animals would show

more externalizing problems than females who hurt animals and children who hurt

animals would experience higher rates of physical abuse than children who have not hurt

animals. An additional hypothesis was that hurting animals would correlate with

aggressive and delinquent behaviors and attention problems as measured by the Child

Behavior Checklist (CBCL, Achenbach, 1991).

Only one hypothesis was fully supported: aggression, delinquent behavior and attention problems all correlate with higher rates of these behaviors exhibited by children who hurt animals. Aggression, in particular, was associated with the behavior of hurting animals. Physical abuse was not correlated with hurting animals and only one site (the Southwest) showed a statistically significant difference between males and females for this behavior with males more likely to do so. Other findings of interest show correlations between hurting animals and aspects of parenting, day care utilization and foster care placement at at least one site.

Table of Contents

Figures and Tables

Chapter I: Purpose

Research Focus and Specific Aims

Animals occupy important but varying roles in all societies. They may be objects of beauty, wonder and fear, often all at the same time. Animals serve as sources of food and materials. They function as working members of pastoral and farming communities and assist blind and disabled individuals to live more independently. Animals are hunted for pleasure and profit and to provide meat. Animals are widely kept as pets, deeply loved as companions and considered members of their particular family. They are mourned when they die. For many children, a beloved pet or series of pets is an important part of childhood. However, cruelty to animals by children occurs often enough to cause concern as to its implications beyond the specific event. This study proposes to identify correlates of hurting animals by young children in order to see what characteristics or behaviors may be associated with this behavior in preschool age children. There is a dearth of research on this issue for this age group and information on its early occurrence may be useful for treatment and prevention.

It is generally accepted if only implicitly that some animals die for certain purposes such as food. Deliberate cruelty to animals, whether or not death results, is generally not accepted, although the parameters of what constitutes cruelty or acceptable exploitation of animals vary in different cultures. Childhood cruelty to animals as a societal problem has only recently been given attention by researchers, but it may have far-reaching implications.

According to Ascione, Friedrich, Heath and Hayashi (2003) "despite longstanding acknowledgement that animal abuse or cruelty to animals may be a marker for

psychological disturbance (e.g., Pinel 1809), remarkably little research has specifically examined this symptom of antisocial behavior in childhood and adolescence" (p. 195). Research that seeks to determine what child behaviors, demographic factors and other aspects of children's lives show relationships to animal cruelty is a current gap in the social work field. Identification of risk factors can be used in early recognition of the problem and may suggest directions for prevention, treatment and further research.

The research questions and hypotheses are based on a review of the literature that indicates a lack of information on the occurrence of the behavior of cruelty to animals in the general population. There also is research indicating it is more common in males and that females show a different trajectory with fewer externalizing behaviors although this research involved older children who were 6-to-13-years-old (Dadds, Whiting & Hawes, 2006). Some research has shown a relationship between callous unemotional traits and animal cruelty, pointing toward the possibility that a subgroup of children with conduct problems are at greater risk for continued difficulty (Christian, Frick, Hill, Tyler & Frazer, 1997; Luk, Staiger, Wong & Mathai, 1999). Animal cruelty may function as a marker for children at high risk of continued difficulty without intervention.

Achenbach (1991b) provides data on incidence of the behavior of hurting animals for children ages 4- to-18 and means for children ages 4- to-11 for this same behavior by gender and referral status. Referral status is defined by whether or not a child has been referred for clinical services. No other information on cruelty to animals is provided. Ascione, Friedrich, Heath and Hayashi (2003) used one question from the CBCL aggressive behavior subscale, "bullies or is mean to others," in addition to the "cruel to animals" item in research with 6- to-12-year-old children. Currie (2006) compared

children exposed to domestic violence with non-exposed children for the behavior of animal cruelty. She used the "cruel to animals" item from the CBCL as the measure of animal cruelty. Although no research located has examined the behavior in relation to CBCL subscales for children aged 6 years and under, there is precedent for using the CBCL as an indicator of the presence of the behavior and the remainder of the CBCL as a means of examining potential correlates of this behavior.

The research focus of this study is a secondary data analysis that explores the incidence of hurting animals and factors associated with it in a sample not selected on this basis. The young age of the children in the sample (approximately 3.5-to-6 years-old) permits examination of whether developmental factors such as such as age-related curiosity and exploration as opposed to other factors identified for older children are associated with the behavior. These latter behaviors include aggression and impulse control. If the behavior of hurting animals in young children is correlated with these problem behaviors it may indicate the child is experiencing difficulties that will continue without intervention. An examination of the literature on the subject of childhood cruelty to animals has revealed areas that can benefit from further exploration through analyses of an existing dataset. Questions that will be asked include the following:

1. What demographic variables, if any, are characteristic of children who are cruel to animals as compared to the sample as a whole?

2. Are there relationships between children who have experienced foster care placements and the behavior of hurting animals?

3. Is there any relationship between parenting style as measured by the Adult Adolescent Parenting Inventory (AAPI) subscales and the behavior of hurting animals?

4. Are there any relationships between parental and child variables such as level of maternal depression, maternal alcohol abuse, separation from caretaker or child developmental delay and the behavior of hurting animals?

5. Do environmental variables such as quality of neighborhood, day care experiences and condition of the home indicate a relationship with hurting animals? Exploring these variables is in accordance with the bioecological concept that conditions and experiences beyond the relationship between the child and the primary caretaker can impact developmental outcomes (Bronfenbrenner & Morris, 1998).

The hypotheses to be tested by the data analysis will be the following:

1. Primary caretakers will report that males exhibit the behavior of hurting animals more frequently than females.

2. Primary caretakers will report that males who hurt animals will show more externalizing problem behaviors than females who hurt animals as measured by the Child Behavior Checklist (CBCL).

3. Primary caretakers will report that females who hurt animals will show more internalizing problem behaviors than males who hurt animals as measured by the CBCL.

4. The CBCL subscales for aggressive behavior, delinquent behavior and attention problems will show statistically significant relationships to the "cruel to animals" variable. These behaviors can be conceptualized as signifying the presence of callous unemotional traits and may indicate a lack of empathy.

5. Children who have hurt animals will have experienced higher rates of child physical maltreatment than children who have not been identified as hurting animals.

Practice Rationale for Research Choice

There seems to be a current lack of knowledge and understanding about the origins of childhood animal abuse and the best practices for working with children who abuse. This is the basic rationale for the exploration of correlates of this behavior. Flynn (2000) conducted a retrospective study of college students and, of those who had hurt animals, 40% reported that they first did so between the ages of 6-and-12 while 11% reported initiating the behavior between 2-and-5-years of age. There has not been any research located that specifically examined the behavior of hurting animals in children younger than age 6 that was not retrospective in design. Thus examination of a sample with data collected at or close to the time of the occurrence of the behavior of hurting animals seems warranted. Ascione (2005) hypothesizes that for younger children hurting animals may arise from curiosity and exploration but if correlates associated with the behavior indicate other issues may be involved this seems worthy of investigation. It is possible that this is a passing phase for many children, quickly corrected with training and education by parents or others, but for some children the problem may persist and

worsen over time. This study examines developmental and behavioral indices as well as environmental factors to see if the behavior occurs in this age group, at what frequency and what are the most significant correlates.

Flynn (2000) provides multiple reasons why animal abuse by family members (including adults) should receive greater attention from researchers and those who work with children and families. In brief, they are:

1. Animal abuse is a serious, illegal behavior.
2. For children and adolescents, witnessing and committing animal abuse are fairly common. He bases this contention on his own work with southeastern college undergraduates and the work of Miller and Knutson (1997) with mid-western college students. In both studies, almost half of the students had witnessed some type of animal abuse and 17 to 20% had abused animals.
3. Witnessing and perpetrating animal abuse may have adverse developmental consequences for children.
4. Possible consequences of animal abuse may be other forms of violence both within and outside of families.
5. Animal cruelty may be a red flag for family violence.
6. Animals, particularly pets, suffer.
7. Addressing animal abuse will help movement towards the goal of a safer, more humane society for all. (pp. 87-88).

There has been research into the possible relationship between animal abuse and various types of child maltreatment such as physical abuse, sexual abuse and domestic violence. Findings are not definitive but Ascione, Friedrich, Heath and Hayashi (2003); Duncan, Thomas and Miller (2005) and Currie (2006) have shown some relationship between higher incidences of animal abuse by children variously exposed to domestic violence, physical abuse and sexual abuse. According to the American Humane

Association (www.americanhumane.org, 2009) 899,000 children were abused or

neglected in 2005 with boys and girls equally at risk. Children most likely to be abused

are 3-years-of-age and younger. If there is a relationship between child maltreatment and

hurting animals, it is complex and may involve other behavioral issues. Research such

as that proposed here may add to the empirical base of information available in dealing

with issues of animal abuse particularly as it is younger children who are most at risk for

child abuse.

      According to Flynn (2000), violence toward animals has been ignored by family

researchers for the same reasons Arluke and Luke (1997) believe it has been ignored by

criminologists: first, society in general does not value animals as much as it does people.

Second, other issues have been seen as more crucial and thus have received more

attention in research efforts. Third, this is not an area that usually receives a lot of

attention from the media or criminal justice systems so the perception is that animal

abuse is uncommon. Finally, animal abuse is viewed not only as an uncommon behavior

but also one that is not connected to other antisocial acts (Arluke & Luke, 1997 cited in

Flynn, 2000, p.87).

      Ascione (2005) states that "the concerted scientific study of animal abuse is a

relatively new field" (p. 51). He echoes Flynn (2000) in viewing animal abuse as an area

of research that has been neglected for two reasons: the difficulty of defining animal

abuse, particularly when it is not at the extreme end of the spectrum and the attendant

problems of measuring and establishing prevalence. Animal abuse may be "a potentially

significant clinical sign of disordered development" (Ascione, 2005, p. 40). If this is the

case, information on what factors are associated with the behavior of hurting animals by

young children may be useful to social workers and others who work with families and children.

As measured by the CBCL (Achenbach, 1991b) there is persistence in the rates of "cruel to animals" for referred boys and girls (that is, referred for mental health services) in the 4- to-11-year-old and 12- to-18-year-old age groupings. Rates for non-referred children were initially much lower in the 4-11- year-old age group and dropped further by ages 12 -18. Although these prevalence rates for childhood animal abuse establish higher rates for clinic-referred children as compared to non-referred children, these rates are not anchored in any contextual framework that specifically addresses the issue. The children in the LONGSCAN sample utilized in this study are exposed to varying levels of risk for child maltreatment. The data collected on their behavior, development and family and neighborhood environments provide the opportunity to examine the behavior in relation to these other factors. In particular, if a relationship can be shown between hurting animals and externalizing behaviors this has implications for the growth of empathy. The failure to develop empathy hinders social emotional development and negatively affects interpersonal relationships.

In conclusion, the rationales for embarking on this study include a gap in the extant research on childhood cruelty to animals, possible connections to the problems of child maltreatment and child maladjustment and the need for information to improve social workers' assessment and treatment of this problem.

Historical Perspective

A brief historical perspective on the evolution of childhood animal abuse as a focus of concern in the area of child well-being seems warranted in order to place the

proposed study in context. According to Ascione (2005), G. Stanley Hall, "the father of

developmental psychology in the United States" (p. 15) wrote extensively on the

importance of relationships with animals in the lives of children. Hall, who studied in

Berlin and conducted research on school-age children in Boston, was interested in how

much urban children knew about wild and domestic animals. His contemporaries, C.F.

Hodge and C. Guillet, both believed that nature study was important and should be

included as part of children's education. Hodge suggested parents should teach children

how to appropriately interact with animals and Guillet recommended classroom pets to

enhance appreciation of nature. Both W. Frederick Burk (1897) and Norman Triplett

(1903) researched bullying and "meanness" by children and included examples of

children abusing animals in their results. These early researchers seem to have focused

on character education and exposure to nature and humane treatment of animals as

antidotes to these behaviors. This work on child-animal relations, carried out in the late

1800s to early 1900s, was not sustained by others, possibly due to societal views of

animals as resources to be exploited or eliminated. In the 1960s and 1970s, Boris

Levinson revisited and expanded the idea that animals could be a source of joy and

support for children, help them to feel nurtured, and to develop empathy and

responsibility. His book, *Pets and Human Development* (1972), examined the positive

effects of pets on children from a child development perspective. He felt exposure to pets

enhanced the ability of infants to attach and feel safe and secure. For toddlers and

school-age children, pets can promote responsibility for others and empathy (Ascione,

2005).

The work of Hodge, Guillet and Levinson focuses more on the positive aspects of child-animal interaction. The opposite situation, children hurting animals, received significant research attention by Tapia (1971, cited in Ascione, 2005). By examining case files, Tapia identified 18 children referred for mental health services where cruelty to animals was a primary concern. All were males, many with other aggression problems, who had been subjected to various types of abuse including domestic violence. A follow-up study of 13 of the boys indicated 8 (62%) were still hurting animals two to nine years later (Rigdon & Tapia, 1977, cited in Ascione, 2005). The sample was not randomly selected but the criterion that the animal abuse must be chronic as well as the follow-up study and examination of possible risk factors make their work significant in the development of child animal abuse studies.

Kellert and Felthous (1985) conducted a retrospective study of criminals and non criminals that found childhood animal cruelty was significantly greater among the former as was a history of violence in their families of origin. This study, frequently cited by other researchers, seems to have initiated a renewed interest in the topic of childhood animal cruelty and what it may portend for further violence, particularly against people. They stated that "the existing scientific literature on this subject has been relatively limited" (Kellert and Felthous, p. 1115). They also cited Tapia (1971) and Rigdon and Tapia (1977) and argued that overall the available research did not support the association of animal cruelty, enuresis, and fire-setting as a triad of behaviors indicative of later violence towards people.

As the literature review section of the study indicates in more detail, much of the ongoing research in this area has been conducted from the 1990s to the present. The focus

of the research shifted to two major areas: connections between family dysfunction and childhood animal abuse, and childhood animal abuse in the context of conduct disorder with an emphasis on the emerging concept of child psychopathology. Family dysfunction includes children as witnesses and victims of domestic violence, physical and sexual abuse and moderate to severe corporal punishment. Findings in this area are mixed. The addition of animal cruelty as a criterion for conduct disorder in the Diagnostic and Statistical Manual III-R in 1987 (DSM III-R, 1987) put this issue in a more prominent position for clinicians to consider in assessment and treatment. According to Spitzer, Davies and Barkley (1990) disagreement among the members of the DSM-III-R Advisory Committee on what items should be included in the disruptive behavior disorders led to a field trial of the potential items. Clinicians at selected facilities were asked to diagnose without reference to the DSM-III although it was recognized that they would be familiar with the existing criteria. For conduct disorder, cruelty to animals was one of the proposed items deemed to have sufficient power when results were analyzed to be included in the DSM-III-R. In the DSM IV (1994) cruelty to animals was moved from the category of destructiveness (as against property) to an offense against living beings (people and animals), an important qualitative shift (Ascione, 2005). The item list for conduct disorder was reorganized into "thematically related groups (aggression to people and animals, destruction of property, deceitfulness or theft, serious violations of rules) to facilitate their use" (DSM- IV, 1994, p.775). However, animal cruelty "does not specifically appear in any of the categories under which juvenile offenders are categorized in national crime reporting systems," making this behavior difficult to measure and track (Ascione, 2005, p. 96).

Arluke, Levin, Luke and Ascione, (1999) conducted research that attempted to overcome the methodological issue of the accuracy of self-report by examining records of animal abuse and then tracking these individuals through the criminal justice system for any antisocial acts. These individuals were matched with controls also tracked through the criminal justice system. Children could not be included in the research because juvenile records are sealed. Their findings indicated that individuals do not graduate from animals to people. Those who abused animals were more likely to commit multiple antisocial acts than those who had not abused animals. These antisocial acts may or may not have involved violence indicating that it is not only aggressive behavior that is problematic; behaviors that violate the rights of others and the norms of society are also implicated in the enhanced risk of those who abused animals. They make the point that "if graduation does not occur in adulthood, it is reasonable to speculate that it also does not occur in childhood "(Arluke, Levin, Luke & Ascione, 1999, p.970). In the ongoing development of empirical research into childhood animal abuse it seems critical, then, to consider that the behavior may be only one expression of disordered development and other difficulties may be associated with it.

The primary goals of continued research into childhood animal abuse seem to be to protect and help both children and animals and provide an empirical base from which to do so. Assessments that screen for the behavior have been developed. These include the Children and Animals (Cruelty to Animals) Assessment Instrument (CAAI, Ascione, Thompson & Black, 1997) for children, the Cruelty to Animals Inventory (CAI) for parents and children (Dadds, Whiting, Bunn, Fraser, Charlson, & Pirola-Merlo, 2004) and the Children's Attitudes and Behaviors Towards Animals (CABTA, Guymer, Mellor,

Luk & Pearse, 2001) for parents. The Boat Inventory on Animal Related Experiences (BIARE, Boat, 1999) examines positive and negative animal experiences including animal abuse as reported by the child. Lewchanin and Zimmerman (2000) have developed a screening and assessment manual for child animal cruelty that contains a screening and referral tool that directs intervention based on the frequency and severity of the abusive behavior. It also contains a variety of assessments from other sources to assist in developing a complete picture of the child, his or her environment, motivations, resilience and readiness for change. The tools are descriptive and have not yet been validated or standardized (Lewchanin & Zimmerman, 2000). Thus, there are measures in existence but how commonly the more detailed ones are used is not known.

<center>Policy and Practice Significance</center>

Childhood cruelty to animals is an understudied area of social work practice. By examining frequencies and correlates of childhood animal cruelty this study seeks to add to the information available to clinicians who work with children and families. Despite the inclusion of hurting animals in the diagnostic criteria for conduct disorder, evidence exists that most professionals do not ask about this behavior (Bell, 2001; Ascione, 2005). Because this particular behavior may not be what has brought a child to the attention of mental health or child welfare organizations, if not asked about, it may not be revealed.

Bell (2001) describes an exploratory survey of mental health agencies in the United Kingdom on the numbers of children referred for animal abuse and services available to them in order to assess how the issue is addressed in clinical practice. Of 722 agencies, 164 (23%) returned the survey. While 56% of respondents said that they had provided such services, there was wide variation in what was offered and how it was

<center>13</center>

framed. However, "no agency had a service or therapeutic intervention directed specifically towards children who abused animals" (Bell, p. 229). Many agencies reported that they did not ask about child cruelty towards animals, and those who acknowledged referrals where animal cruelty was an issue fell into two broad categories. One group held that child cruelty to animals was part of a larger constellation of risk behaviors and symptoms, and treatment was aimed at the underlying causes. The second grouping saw animal cruelty as especially disturbing and would focus on it in treatment. Bell (2001) writes that:

> Possibly, those who hold the first opinion have a more holistic, systemic view of children's behaviour and doubt the validity of the usefulness of a limited number of risk indicators, while those who express the second opinion have a more medical orientation and believe that behaviour is more directly related to individual pathology. Another possibility is that, since research and literature on animal cruelty/family violence is limited, those professionals who hold the first opinion have less knowledge about the significance of animal cruelty for children's behaviour. (p. 230)

While the current study will not address the issue of treatment approaches it will provide information on correlates of this behavior in young children that may indicate some intervention is indicated for this behavior.

In their review of the links between animal abuse and domestic violence, Faver and Strand (2003) state that

> The knowledge produced through research and the link has

> implications for social work practice. By integrating this
>
> knowledge into all areas of the curriculum, including field
>
> education, social work educators can strengthen efforts to prevent,
>
> intervene in, and finally end domestic violence. (p. 250)

While Faver and Strand (2003) focused on animal abuse in the context of domestic violence, the point that more education and training will benefit current and future practitioners applies to the wider field of childhood animal abuse. The problem cannot be ameliorated if it is not recognized, treated and viewed in all its connections in the life of any individual child.

Piper and Myers (2006), referencing an article by Becker and French (2004), raise important questions and concerns about causality versus correlation: "If the actual incidence of children harming animals is significantly greater than is generally accepted (a tentative finding of our research), this is clearly an unlikely and ineffective indicator of future violent behavior as claimed by Becker and French, and others" (Piper & Myers, 2006, p. 179). They stress the importance of using language carefully and remaining open to other explanations that may impact behavior such as poverty. The research detailed in the literature review section of this study on the correlations among traits, environmental factors and behaviors may be seen as one way of expanding this discourse. Not every child who hurts an animal will go on to hurt other animals or people, but some may and trying to understand what differences may factor into the divergent pathways is crucial.

In terms of policy implications, more information on prevalence and correlates of child animal abuse would serve to indicate whether policies should be developed or expanded and in what directions. Ascione (2005) believes that a national database that

collects information on numbers of animals abused and on who is engaging in the

behavior (be it children or adults) would be a valuable tool to establish a baseline. Such

information could help in defining the scope of the problem nationally and by state,

measuring change and determining the effectiveness of interventions (Ascione, p. 147).

There do not appear to be protocols for humane societies, prevention of cruelty to

animals groups or animal control agencies on how to approach childhood animal cruelty.

Responses vary from state to state. Particularly egregious cases usually receive publicity

and some type of response, but many opportunities for early identification and treatment

probably are lost, to the detriment of the children and animals involved. According to

Frasch, Otto, Olsen and Ernest (1999) all states have an animal cruelty statute. The

authors do not distinguish between child and adult offenders.   Most of the statutes are

misdemeanor offenses but 23 states have some form of felony animal cruelty law. There

is variability in how the animal cruelty laws are enforced, however. Among the reasons

cited are biases in "taking animal abuse seriously as a violent crime" (Frasch, Otto, Olsen

& Ernest, 1999, p.70). Eight states require evaluations and counseling while other states

may mandate either or both as part of sentencing guidelines. Community service or

restitution may also be required by some states. Cross reporting by humane officers of

suspected or known child abuse is allowed or required in four states and the District of

Columbia. Only Florida authorizes cross reporting by child welfare workers of known or

suspected animal abuse. The research on possible links between animal cruelty and

violence towards people is referenced as a factor in educating and influencing state

legislatures to strengthen animal cruelty laws ((Frasch, Otto, Olsen & Ernest, 1999, p.70).

As a policy goal, requirements for cross reporting by child welfare and humane officers

in more states would provide information for individual states to collect data on animal

cruelty. These data could then be utilized for a national database to establish prevalence

rates that could inform legal, research, prevention and treatment initiatives.

Arkow and Ascione (1999) advocate "closer cooperation, coordination and

collaboration…among the three disciplines" of child welfare, animal welfare and

criminal justice (p. 465). Such increased cooperation may be a first step towards

strengthening the case for cross reporting as well as greater societal recognition of animal

cruelty as an issue worthy of attention. If laws exist they should be enforced while taking

into consideration the possibilities for restorative justice particularly when children are

the offenders. They also suggest interdisciplinary teams that could promote the greater

utilization of humane education programs in schools, after-school programs and other

arenas where groups of children gather. This is a more prevention-oriented approach

directed towards all children in a given group, not just children who may have hurt

animals. Most such programs have not been researched regarding their efficacy, but

Ascione (1992) conducted an experimental study of a year-long intervention in an

elementary school setting and found positive results both for attitudes toward animals and

a more generalized sense of empathy.

Despite a growing body of research and empirical support that cruelty to animals

by children may be a sign of disordered development including a failure to respond

empathically social work practice does not seem to systematically address this issue in

practice or in policy. The criminal justice system response is also not adequate in spite of

statues in all states that treat animal abuse as at least a misdemeanor offense. This study

will examine the behavior of hurting animals to determine if there is any evidence that

even preschool age children who do so may be at risk for behavioral problems that can impact developmental outcomes. If it is demonstrated that hurting animals correlates with other risk factors in the lives of young children this will add to the knowledge base that informs social work policy and practice. Directions for further research may also be suggested by the findings of this study. Addressing behavioral issues early in the life of a child may enhance the possibilities for remediation and more positive outcomes.

Literature Review

Animal abuse by children and adolescents has only recently been the subject of sustained empirical inquiry. This literature review examines this research and how it has evolved over time. Animal abuse by youth is conceptualized as a possible precursor to adult interpersonal violence and other antisocial behavior. According to Haden and Scarpa (2005), most of the early research involved information collected retrospectively from violent and nonviolent incarcerated individuals. As these authors point out, it generally is impossible to ascertain if the information provided is accurate, although the findings indicate violent offenders engaged in more serious and frequent animal cruelty as children and adolescents than either nonviolent offenders (Hellman & Blackman, 1966, Felthous & Yudowitz, 1977, Kellert & Felthous, 1985) or non offenders (Kellert & Felthous, 1985).

This literature review also contains sections that discuss the development of empathy in children and the relationship between parental empathy or warmth in hindering or encouraging child empathy and emotion regulation. Attitudes towards parenting are examined in the data analysis for their potential relationship with the behavior of hurting animals by children. While empathy is not directly measured in this

18

dataset, this concept is being explored in current research into childhood animal abuse (Luk, Staiger, Wong & Mathai, 1999; Dadds, Whiting & Hawes, 2006). The failure of empathy development in children with particular temperamental dispositions may result in behaviors that can include hurting animals.

Retrospective Studies

Kellert and Felthous (1985) conducted a landmark study of childhood cruelty to animals by incarcerated individuals and randomly selected individuals who were not incarcerated. They defined animal cruelty as "the willful infliction of harm, injury, and intended pain on a nonhuman animal" (p. 1114). They were interested in exploring possible relationships among childhood animal cruelty, its motivations, family violence and aggressiveness towards people.

Kellert and Felthous's sample was all male. The community sample was chosen at random from urban, rural and suburban towns near Danbury, Connecticut and Topeka, Kansas. Incarcerated individuals were recruited from federal prisons in Danbury and Leavenworth, Kansas for a total sample of 152 participants including 50 non criminals who participated in the study. Those in prison were rated as aggressive or non-aggressive by prison counselors and based on their own reports of past behaviors as adults. The researchers developed a scale rating aggressive behaviors from 1-10. Behaviors included aggressive speech such as threats and actions that resulted in bodily harm. Behaviors causing serious harm had to occur at least three times in a year to for the individual to be rated as aggressive based on counselors' ratings. Prison counselors rated subjects based on behaviors observed in the prison setting while prisoners rated themselves on their past history. The ratings of prisoners and prison counselors were highly correlated ($r = .76$).

Of the 102 criminals, 32 were rated as aggressive and 52 as nonaggressive. A third

category of 18 moderately aggressive criminals also was created using participants from

the Leavenworth prison. The criteria for differentiating this last group are not given.

Information was gathered in interviews containing both closed- and open-ended

questions. Data on childhood animal cruelty consisted of closed-ended questions and a

qualitative section on "situations of animal cruelty and family violence among the

subjects" (Kellert & Felthous, 1985, p.1117).

The authors performed quantitative and qualitative analyses. There were 373 acts

of some harm to animals reported during childhood across the entire sample.

"Differences were highly significant with the greatest variance attributable to the

inordinately high frequency of childhood animal cruelties among aggressive criminals"

(Kellert & Felthous, 1985, p. 1119). Among the 32 prisoners considered to be aggressive,

25% reported five or more acts of harm to animals. Less than 6% of moderately

aggressive and non-aggressive criminals reported 5 or more acts harm to animals. Non

criminals reported no occurrences of five or more acts of animal cruelty. All four groups

reported some level of childhood animal cruelty. Nine aggressive criminals, 5

moderately aggressive, 20 nonaggressive and 28 noncriminals engaged in one to two acts

during childhood. A severity scale for childhood animal cruelty created from the

interview results indicated that only aggressive criminals showed statistically significant

levels of what was defined as severe animal abuse. The scale scores "were an overall

mean based on the summation of 1-5 severity ratings for each of the various animal

cruelty behaviors, in addition to similar ratings for other aggressive acts toward animals"

(Kellert & Felthous, 1985, p. 1120). It is not clear what the differences are between the

two sets of animal cruelty acts used for the scale scores. The researchers state that "the scale scores of moderate and nonaggressive criminals and noncriminals were insignificant, further suggesting the *fundamental* importance of aggressiveness rather than criminality in the occurrence of childhood cruelty toward animals" (Kellert & Felthous, 1985, p.1120).

In looking at the family backgrounds of the participants, aggressive criminals had significantly higher scores on a scale measuring aggressiveness toward people in childhood. Aggressive criminals also reported higher rates of various types of family violence, including domestic violence, physical child abuse, and physical fights with their fathers, in addition to higher rates of parental alcoholism, particularly in fathers. These types of family dysfunction also were more likely to be found in the non-aggressive and non criminals who had engaged in acts of animal cruelty. The authors do not define domestic violence as, for example, father-to-mother violence only, so it is unclear if this category includes parental violence only or parental violence towards children and physical fighting with fathers. Clearly, household violence of some kind was present more often for those who abused animals (Kellert & Felthous, 1985).

Based on review of the qualitative portions of their interviews, Kellert and Felthous (1985) developed a list of motivations for childhood animal abuse. They cautioned that the list is preliminary and requires additional research. Many subjects identified multiple motivations indicating the complexity of this behavior. The motivations are as follows:

1. To control an animal.
2. To retaliate against an animal.
3. To satisfy a prejudice against a species or breed.
4. To express aggression.

    5. To enhance one's own aggressiveness.
    6. To shock people for amusement.
    7. To retaliate against another person.
    8. Displacement of hostility from a person to an animal.
    9. Nonspecific sadism.   (pp. 1122-1124)

The authors conclude that "the strength of these findings suggests that aggression among adult criminals may be strongly correlated with a history of family abuse and childhood cruelty towards animals" (Kellert & Felthous, 1985, p 1127). They further suggest that childhood animal cruelty could be a sign of family dysfunction and possible future violent tendencies. While explanations of their methodology lack clarity in some instances, their study identified a correlation between familial violence, childhood animal cruelty and criminal aggression in adulthood that has had a strong influence on research in the area of child animal cruelty. The concurrence of childhood abuse and the aggression and lack of concern for others evident in the list of motivations for animal cruelty implies an inability to feel empathy. The current study will examine child maltreatment and aggression among other variables as possible correlates of hurting animals and what that may imply for the development of empathy in young children.

    Miller and Knutson (1997) conducted two studies, one with incarcerated males and females and the other with male and female university students in introductory psychology classes. The study with incarcerated individuals had two goals: to assess the rate of physical abuse in childhood and whether or not such abuse differentiated between violent and non- violent offenders. The second goal was to examine the prevalence of animal cruelty experiences, whether they co-varied with physical abuse and if these experiences discriminated between violent and nonviolent offenders (Miller & Knutson, 1997, p.61). Both exposure to animal cruelty and acts of animal cruelty were examined.

The 314 incarcerated individuals, all of whom volunteered for the study, were recruited from both the general population and new admissions there for assessment before assignment to a particular facility. The authors report no significant differences between study participants and the general population of the prison. They did note an over representation of females and an under representation of ethnic and racial minorities. The sample consisted of 50 females and 264 males. In terms of ethnic and racial minorities, 13 % of the sample was African American compared to 20% of the total prison population. Variables of interest included the incidence of severe physical punishment in childhood, acts of violence towards animals and exposure to animal cruelty. Exposure to animal cruelty was defined as witnessing acts of animal abuse. Strong positive correlations between severe physical punishment and acts of animal abuse were not found, although 66% of the prisoners reported either engaging in or witnessing animal abuse.

Miller and Knutson's study with university students provided a comparison sample intended to be more representative of the general population. The authors do not address the issue of how representative a university sample is except to refer to them as a "natural collectivity" (Browne & Finkelhor, 1986 cited in Miller & Knutson, 1997, p.75). The sample consisted of 308 students in two introductory psychology classes who volunteered for the study as one of multiple options for meeting the course research requirements. They were not found to be substantially different from the university population as a whole which leaves open the question of how representative university students are of the general population. With regard to engaging in or witnessing animal abuse, 48.4 % of the sample reported some exposure, while 20.5% reported engaging in

at least one actual act of childhood animal abuse. Males reported significantly more involvement in animal abuse than did females. This was not the case in the prison sample as the researchers found no significant differences between males and females in the variables of interest so reported those findings for the group as a whole.

In these two studies, Miller and Knutson did not find any support for the hypothesis that exposure to animal cruelty is correlated with engaging in criminal activity in general or to violent activity in particular. The low number involved in multiple and more serious acts of animal abuse, however, precludes definitive conclusions. They also note that their findings do not support the hypothesis that physical maltreatment of children by their parents and child or adolescent animal abuse are positively correlated because they only found a modest association between the two variables. Miller and Knutson argue that the concept of animal cruelty was not clearly defined in the literature. They concluded that "the current findings do not indicate that the line [between animal cruelty, child maltreatment and antisocial behavior] is simple and straight forward" (Miller & Knutson, p. 80). It should be noted that their methods of recruiting participants may have biased their findings. For example, the prison participants were told the research would be anonymous but may have believed some benefit would ensue. Similarly, participation in some research activity establishes eligibility for other research opportunities at the university involved so students may have felt they had to participate. This in turn may have biased the findings.

Like Miller and Knutson (1997), Flynn (1999) examined possible links between childhood and adolescent cruelty to animals and corporal punishment in a population of college students from a southern university. He applied Ascione's (1993) definition of

animal cruelty which focuses on intentional cruelty and excludes socially acceptable practices such as hunting. He operationalized corporal punishment as spanking, slapping or hitting during the preteen and teenage years by mothers and fathers separately. Flynn also included violence between parents and child abuse as separate variables. Child abuse was operationalized as being kicked, punched, bitten, choked, attacked with a weapon or beaten up (Flynn, 1999, p.974). Respondents were asked about witnessing, as well as engaging in, animal cruelty during childhood and adolescence.

The study consisted of 266 college students (182 females and 84 males). Over three-fourths (80%) of the sample were freshmen or sophomores under age 21, and 92% were under 25. Flynn reports that 18% had abused animals and 45% had witnessed others abuse animals. Of the participants, 40% were ages 6- to-12 when they initially hurt an animal and 11% were ages 2- to-5 when they first engaged in this behavior. Half of those who were cruel to animals as children continued this behavior into adolescence. Most killing of wild and stray animals occurred during adolescence while hurting an animal or killing a pet was more common among participants between the ages of 6-and 12-years. Males were significantly more likely to have abused animals than were females. In addition, participants who had abused animals received corporal punishment more frequently than those who did not abuse animals. Flynn reports that "the relationship between the frequency of corporal punishment received and the perpetration of animal abuse held primarily for sons who were spanked by their fathers" (p. 976).

Multiple regression analyses by Flynn (1999) indicated that the model which explained the greatest amount of variance (23%) indicated that males spanked by their

fathers as teenagers were more likely to abuse animals. Regression analyses for females did not reveal corporal punishment to be related to animal abuse.

In discussing his findings, Flynn writes

As suspected, a relationship between parent-to-child violence and animal abuse was uncovered. Respondents who had perpetrated animal abuse were physically punished more frequently before adolescence than those who had never abused an animal. This is particularly significant because the relationship was not found for abusive violence toward the preteen child, but for what many would term "ordinary" or "normal" violence, i.e., spanking. Equally important was the fact that this association was found not among troubled youth or aggressive criminals but among a nonclinical sample of college students. (pp. 978-979)

Another factor to consider is that, similar to Miller and Knutson's (1997) study of college students, the incidence of witnessing or perpetrating some type of animal abuse was high – 49% – with males greatly outnumbering females in this regard. This raises two questions – first, what causes such high rates in a nonclinical sample and second, what is it about male and female socialization that leads to such different levels of response in regards to animal cruelty? Looking solely at the frequency of spanking by either parent of both male and female preteens who engaged in some form of animal abuse, the percentage of boys spanked starts higher and remains higher.

Flynn (1999) points out that because the study is correlational, the direction of the association between spanking and animal abuse is unknown. Other limitations were that

the sample was a convenience sample, using retrospective data unverified by other

sources. Finally, the operationalization of the concept of animal cruelty may have colored

the results. There also is the question as to whether a different categorization (e.g., pets

versus wild animals) or questions regarding individuals' feelings about their acts of

animal abuse would have affected these results.

Research conducted by Arluke, Levin, Luke and Ascione (1999) examined the

violence graduation hypothesis as opposed to the deviance generalization hypothesis.

The violence graduation hypothesis makes the assumption that those who abuse animals

will eventually move on to violent acts against people whereas in the deviance

generalization hypothesis "animal abuse is simply one of many forms of antisocial

behavior that can be expected to arise from childhood on" (Arluke, et al., p. 965). The

deviance generalization hypothesis posits a more complex and nondirectional association

between a behavior such as animal abuse and other violent acts. Thus, looking at

aggressive behaviors in general whether in children or adults may provide more useful

insights and information to begin to explain the phenomenon of animal abuse, what may

underlie deviant behavior in general and how it can be both prevented and treated.

Arluke and his colleagues operationally defined animal cruelty as intentional physical

harm. They examined records of animal abuse from the Massachusetts Society for the

Prevention of Cruelty to Animals (MSPCA) and matched the individuals involved with

case controls. Controls were obtained from voting lists in the year that each incident of

animal abuse occurred. They were chosen randomly from those of the same gender, age

range, and socioeconomic status who lived on the same street as the individual who had

committed animal abuse. The total sample consisted of 306 people; 153 of these individuals had committed documented acts of animal cruelty.

All 306 subjects were then tracked through the criminal justice system except for any acts committed when they were under the age of 17, as juvenile records are sealed. Thus while childhood animal cruelty data were available from the MSPCA information on other juvenile offenses was not. Of the animal abuse acts in the MSPCA records, 58% were committed when the individual was under age 21. Instead of using only violent criminal acts as a dependent variable, any antisocial behavior was considered in the analysis: violence against individuals, property offenses, drug offenses and disorderly conduct. Results indicated that animal abusers were significantly more likely to have been involved in criminal activity than were controls. This included not only violent acts but also property crimes, drug offenses and disorderly behavior. Abusers were not more likely to commit animal abuse prior to other acts; abuse could precede, follow or be concurrent with such behaviors. The deviance generalization hypothesis is supported by these findings. The authors point out that continued adherence to the graduation hypothesis, while appealing, will impede research, treatment and prevention efforts: "a link might exist between animal abuse and violence, but future research needs to tease out how often and why a subset of animal abusers subsequently commit adult violent behavior" (Arluke, Levin, Luke & Ascione 1999, p. 973).

Hensley and Tallichet (2005) examined the motivations for childhood and adolescent animal cruelty in a male prison population. A questionnaire was mailed to individuals in three corrections facilities; participation was voluntary. The response rate was 12.5% resulting in a sample size of 261. In addition to asking their respondents to

identify their motivations, the researchers also examined some contextual variables, including whether respondents were alone at the time, whether they hid their actions, or whether they were upset. Age and frequency data also were collected.

The incidence of animal cruelty in Hensley's and Tallichet's research (2005) was 43%; 112 of 261 respondents had abused animals in childhood or adolescence. The respondents (male prison inmates) were allowed to choose multiple motivations for abusing animals as children and adolescents. The most frequent responses were anger and fun, 48.2 % and 38 % respectively. The researchers consider these emotional responses at opposite ends of the emotional spectrum. Anger may be released on the one hand and a positive mood maintained on the other. Both can be considered problematic: inappropriate anger expression and pleasure derived from another's pain. Hensley and Tallichet (2005) found that those who started at a younger age "were more likely to have engaged in multiple acts of animal cruelty" (p. 1455). Age, one of their independent variables, did not prove to be statistically significant in their logistic regression analysis with any of the dependent variables. The dependent variables were the motivations for animal cruelty derived from their surveys. It is possible that starting at a younger age and persisting in the behavior leads to more frequent acts of animal cruelty but leaves open the question of why the behavior persisted. It also is possible that the motivations subjects identified did not tap into earlier childhood experiences. No information is provided for the sample on the age of first animal cruelty act or how long the behaviors continued making further interpretation of this finding difficult. In other findings from this research, those who abused animals alone were seven times more likely to do so out of anger than those who acted with others and those who committed multiple acts were

three times more likely to do so in order to control the animal as opposed to those who

did not commit as many acts of animal abuse (Hensley & Tallichet, 2005). The authors

> conclude that a general model for animal cruelty is needed from which a
>
> profile of animal abusers could be systematically developed. In turn, such a
>
> profile could inform future prevention and intervention strategies…In the
>
> present study, motives are conceived of as animal abusers' post hoc
>
> interpretations of their actions and operationalized according to those
>
> identified in previous studies conducted by Ascione et al. (1997) and Kellert
>
> and Felthous (1985). (Hensley & Tallichet, 2005, p.1433)

Ascione (2005) describes 12 motivations for animal cruelty by children, some of

which directly overlap with those identified by Hensley and Tallichet (2005), such as

sexual gratification and imitation. Other motivations are outside the scope of the data

collected by the latter authors, such as curiosity or exploration, which generally is

engaged in by younger children and can be viewed as a developmental stage as well as

post traumatic play. Ascione derives support for his motivations from a variety of

sources including his own research (Ascione, Thompson & Black, 1997), his clinical

experience, and other researchers. There also is some congruence with the motivations

provided by Kellert and Felthous (1985) such as to shock people, to control an animal

and aggression if acting in anger is considered a form of aggression. Thus, there seems to

be an emerging consensus on motivations for animal cruelty in childhood and

adolescence. Table 1 provides a listing of the motivations for animal abuse compiled by

Kellert and Felthous (1985), Ascione (2005) and Hensley and Tallichet (2005).

TABLE 1: MOTIVATIONS FOR CRUELTY TOWARD ANIMALS

Kellert & Felthous (1985)	Hensley & Tallichet (2005)	Ascione (2005)
To control an animal	For fun	Exploration (in young children)
To retaliate against an animal	Out of anger	Peer reinforcement
To satisfy a prejudice against a species or breed	Dislike of the animal	Modify mood
To express aggression	To shock people	Sexual gratification
To enhance one's own aggression	Out of fear of the animal	Enticed, coerced, or forced
To shock people for amusement	To impress someone	Emotionally abuse others (by hurting their pet)
To retaliate against another person	For revenge against someone	Animal phobias
Displacement of hostility from a person to an animal	To control the animal	Attachment to an animal (to protect someone else from hurting it by killing it)
Nonspecific sadism	Sex	Identification with the aggressor
	Imitation	Means of self-injury (by teasing animal until it hurts you)
		Posttraumatic play
		Monetary gain
		Rehearsal for interpersonal violence

In Ascione's typology (2001) exploratory or curious animal cruelty is perpetrated by preschool to elementary aged children who may be poorly supervised, have no experience with animals and may not realize that their behavior is hurtful. Pathological animal abuse usually is engaged in by children who are older, may exhibit symptoms of psychological problems and have trauma histories such as exposure to domestic violence (Ascione, 2005). The hypotheses and research questions for the current seek to explore

what the correlates of hurting animals are for the preschool and kindergarten age group to ascertain if the behavior may be associated with problem behaviors even at these early ages. If hurting animals is associated with aggression and physical abuse, for example, this has implications for how the behavior may progress as well as for intervention and treatment.

This literature review will now examine research involving children and families. Such research provides information on what may be going on in a child's or adolescent's life and is a necessary step in exploring the genesis of the behavior as well as possible correlates to the behavior. Reliability of the information may be enhanced by using multiple sources for the occurrence of childhood animal abuse as is the case in some studies and because the acts are more recent.

Research with Family and Child Samples

Currie (2006) utilized a community sample of mothers and children in Canada to investigate the hypothesis that children exposed to domestic violence were more likely to be cruel to animals. Mothers had to self report a history of domestic violence by a male partner to which the children had been exposed and had to have received some domestic violence counseling in order to participate in the study. A sample of mothers and children who had not been victims or witnesses of domestic violence was recruited for comparison purposes. Both samples were recruited through advertising in newspapers and flyers. Respondents not experiencing domestic violence were matched against those who had experienced domestic violence on demographic variables such as age, number and ages of children, education and income. The domestic violence sample consisted of 47 mothers and 94 children. The comparison sample had 45 mothers and 90 children.

The mothers were 62% and 82% white, respectively. Information on race was not provided for the children. Fifty-six boys and 38 girls had been exposed to domestic violence. The group not exposed to domestic violence contained 40 boys and 50 girls. The age range for the children in both groups was 5- to-17 years-old with the mean age for the domestic violence group 9.9 years and for the comparison group, 9.5 years. The item that asks about cruelty to animals from the CBCL (Achenbach, 1991b) was used as the measure of animal cruelty. The choices for response are never true, sometimes or somewhat true and very often or often true. Because of the small sample size the responses were converted to true or not true. Chi-square analysis indicated that exposed to domestic violence children were significantly more likely to have engaged in animal cruelty than were non-exposed children (Currie, 2006). In addition, exposed children who were cruel were, on average, older than non-exposed children who were cruel although the age difference was not statistically significant.

Currie speculates that the children's cruelty may be a learned behavior, modeled after the aggressor and carried out against animals as a means of restoring lost feelings of power and control. She also considers that, from an ecological standpoint, exposed children who were cruel to animals may misperceive environmental cues as threatening and react accordingly. After analyzing the remaining items on the CBCL, Kendall's Tau-b correlations showed statistically significant relationships between animal cruelty and four other items for children who were both exposed to domestic violence and cruel to animals:

- Destroys own things
- Easily jealous
- Feels unloved
- Fears animals and places

These children were compared to the children exposed to domestic violence who were not cruel to animals rather than children from the comparison group. Comparing the children who hurt animals to those who did not regardless of domestic violence exposure might have resulted in different findings. The purpose of the comparison was to see if the items indicated any behavioral or emotional problems that may be associated with children who are cruel to animals (Currie, 2006). Currie does not discuss the findings but the association with some aggressive behaviors is in accordance with the motivations described by Kellert and Felthous (1985), Hensley and Tallichet (2005) and Ascione (2005). Among limitations cited by the author are the small sample size, unexamined exposure to other forms of abuse, and the use of a single item to operationalize animal cruelty.

Ascione, Friedrich, Heath and Hayashi (2003) examined 3 groups of 6- to-12-year old children, normative (that is no known abuse or psychological issues), sexually abused and psychiatric outpatients, for cruelty to animals. The normative group of 540 children was recruited from medical and pediatric clinics in Minnesota and public and private day care facilities in California. No sexual abuse or prior mental health treatment was reported for these children and they served as a comparison sample to the other two groups. The sexual abuse group consisted of 481 children with sexual abuse documented by child protective services agencies. They were referred by 13 United States, Canadian and European clinics. The 412 children in the psychiatric outpatient group came from six US clinics and one German clinic. These children had no reported sexual abuse history. The samples contained both boys and girls according to the results but a breakdown by gender is not provided. As with Currie (2006), the researchers examined the relationship

of the cruel to animals item from the CBCL to sexual abuse, domestic violence and physical abuse. Cruelty to animals was reported for 3.1 % of the normative group, 17.9% of the sexually abused group and 15.6% of the psychiatric group. The CBCL was administered to mothers or other primary caregivers along with the Child Sexual Behavior Inventory (CSBI, Friedrich, 1997). Physical abuse and domestic violence were ascertained by one question about physical abuse and one about whether parents had shown physical aggression to each other. It was not determined if the children saw parents physically fighting or not. A second item from the CBCL, item 16, rating cruelty, bullying or meanness to others was used as a measure of cruelty to others.

There were low rates of reported physical abuse and parental fighting in the normative group and higher rates for the other two groups, indicating some of these children had been victims of multiple types of maltreatment. These findings were descriptive only and not compared among the groups for statistical significance. Unlike Currie (2006), this study found significant gender differences (i.e., boys had higher rates than girls) for animal cruelty in the sexually abused and psychiatric groups, although "cruelty to animals was more frequently reported where there was comorbid physical abuse in both clinical samples and, to a less consistent degree, when both physical abuse and domestic violence were reported" (Ascione et al., 2003, p. 206). Cruelty to animals and other forms of cruelty such as bullying or acting mean were significantly correlated in all three groups. Psychiatrically distressed and sexually abused girls exposed to parental physical fighting alone or in combination with physical abuse showed little to no animal cruelty.

Limitations in this study include relying only on parent report, lack of information on when the animal abuse occurred and no exploration of pet ownership. The operational definitions of animal cruelty, domestic violence, physical abuse and sexual abuse were broad and non specific. The data do indicate that cruelty to animals occurs more frequently in children who have been physically abused, especially boys. Cruelty in multiple spheres, that is, to animals and to others seems to be related and offers research direction in the area of antisocial behaviors in general (Ascione, Friedrich, Heath & Hayashi, 2003).

Baldry (2003) conducted a study designed to examine the frequency of animal abuse by children, children's exposure to domestic violence and physical abuse based on youth self report and, finally, if exposure to domestic violence is correlated with child cruelty to animals in a community sample separating exposed and abused children from those only exposed. The sample was obtained from randomly chosen elementary, middle and high schools in Rome, Italy and consisted of 1,396 students, 45.9% female and 54.1% male. Baldry utilized her own tool, the P. E. T. (Physical and Emotional Tormenting against Animals) as a measure of child animal abuse. A principal components factor analysis of the results using the P.E.T. indicates two factors: direct animal abuse and exposure to such abuse by significant others. The Modified Conflict Tactics Scale (Straus, 1979) used in the study as a measure of domestic violence also showed two factors in factor analysis: mother violence to father and father violence to mother. Finally, children were asked whether or not parents ever physically harmed them as a measure of physical abuse.

Baldry's results indicated that half of the participating youth, 9-17- years-old, had engaged in at least one act of animal abuse. Boys were twice as likely to commit such acts. These rates are much higher than those found by Flynn (1999) and Miller and Knutson (1997) in surveying college students. Baldry points out that comparison is difficult because different instruments were used – her instrument was more comprehensive. It also may be that college students, who are older and more concerned about the social unacceptability of such behavior even if reported confidentially, did not accurately self report. Finally, Baldry's findings on domestic violence, which included verbal and threatening behaviors as well as physical violence, indicated father to mother violence was more frequent. The possibility exists that mother to father violence was in response to father's, but the data do not capture this information. Overall, fathers engaged in more severe acts of violence.

In terms of children's risk for animal abuse those exposed to domestic violence and those exposed to both domestic violence and parental abuse were at increased risk as shown in multivariate analyses. For the exposed to domestic violence and abused group 21% of the variance of animal abuse was accounted for. Gender (males) and peer animal abuse were the strongest predictors along with mother or father animal abuse, mother to father violence and the child being older. Analysis of the exposed only group accounted for 23% of the variance of animal abuse; statistically significant predictors were being male, peer animal abuse and exposure to mother and father animal abuse. Baldry (2003) states that this highlights the importance of looking at exposed versus exposed and abused groups separately despite the commonalities in the findings as the exposed and abused group appeared more affected by the domestic violence.

As with Ascione, Friedrich, Heath and Hayashi (2003), Baldry's results (2003) indicate that domestic violence and child physical abuse may be risk factors for childhood animal abuse. Ascione, et al., (2003) point out that " although this study [Baldry, 2003] used a presumably normative sample, the results parallel our findings for the SEXAB [sexually abused] and PSY [psychiatric] groups where parental physical fighting, either by itself or in combination with physical abuse, was associated with substantial levels of cruelty to animals" (p. 207). Baldry (2003), however, used different measures and looked at lifetime prevalence of animal abuse and exposure to domestic violence as reported by youth while Ascione, et al. (2003) used the CBCL with a six month time frame as reported by parent or caretaker. Baldry (2003) did not look at psychiatric diagnoses, mental health involvement or sexual abuse issues. This highlights the difficulty of comparing across studies and populations, although the similarity of findings points to the possibility of common underlying processes that could be further examined. This in turn could lead to policy and practice changes designed to ameliorate risk.

Duncan, Thomas and Miller (2005) examined family risk factors and their possible relationship to the development of animal cruelty in boys with various kinds of conduct issues. Their working hypothesis was that boys who were cruel would show stronger family histories of physical abuse, sexual abuse, paternal alcoholism, paternal unavailability and domestic violence than those who were not. The two groups were obtained by examining files of boys who had been in a residential treatment facility in the northwestern United States in the past ten years. All met criteria for conduct disorder or oppositional defiant disorder. Each group examined contained 50 cases. Of the 50 boys

with documented instances of animal cruelty, 43 provided enough description to demonstrate severe cruelty (torture or death of the animal), 9 demonstrated moderate cruelty (no significant injury) and 3 suggested sexually inappropriate behavior with an animal. The median age for the entire group of 100 participants was 13 years. Stratified random sampling was used to control for possible confounding diagnoses of attention deficit hyperactivity, substance abuse and depression.

Using Fisher's exact test, results indicated that the children who were cruel to animals had more severe histories of physical abuse, sexual abuse and exposure to domestic violence. These authors did not find significant differences between the two groups in terms of paternal alcoholism and paternal unavailability (Duncan, Thomas & Miller, 2005). They believe that "the present study's results give clear support to the possibility that children are modeling cruel and abusive behaviors in adults. A concurrent lack of empathy may be necessary to lead to the actual cruel behavior" (Duncan, et al., p. 238).

The findings of Duncan, Thomas and Miller (2005) are similar to those of Ascione, Friedrich, Heath and Hayashi (2003), Baldry (2003) and Currie (2006) insofar as all studies find associations among physical abuse of children, sexual abuse of children, domestic violence (or combinations thereof) and animal cruelty. Flynn (1999) identified a relationship between father to son corporal punishment and animal abuse by children. Miller and Knutson (1997) did not find that abusive childhood backgrounds were related to animal cruelty but felt that their data were "skewed and leptokurtic" (p. 79). Although it is difficult to compare studies that utilized different methodologies there are contradictory findings regarding the relationship between childhood animal cruelty

and exposure to physical abuse and domestic violence. It is also difficult to compare studies due to different definitions of animal abuse, different measures and different methods. Chart reviews, retrospective interviews, parent reports and child reports are all utilized. Independent verification often is difficult, if not impossible, to obtain. As more research is conducted and there is greater agreement on how to define and measure childhood animal cruelty these relationships may become more definitive. The behavior of animal cruelty does seem to be much more frequently engaged in by boys. In a very large sample of 1396 students, Baldry (2003) found boys to be twice as likely as girls to commit some type of animal abuse. Some studies only examine boys. There also are questions as to how to view acts of animal abuse. Deliberate harm to an animal by a child is generally viewed as an unacceptable behavior. Developmental ignorance aside, continued animal abuse raises many issues. Why is the behavior continuing? This seems to be the focus of much current research. The risk factors cited such as physical and sexual abuse and domestic violence, affect many children, most of whom do not abuse animals. It is possible that only a subset of children in such situations engage in this behavior. Some children who never are exposed to familial abuse also may abuse animals. The particular factors that lead to some children turning to this behavior also are crucial to understanding treatment and prevention. A lack of empathy has been suggested as one possible factor, predisposing some children to engage in cruelty to animals (Ascione, 1992; Duncan & Miller, 2002; Duncan, Thomas & Miller, 2005).

Luk, Staiger, Wong and Mathai (1999) examined whether or not children with conduct problems who were cruel to animals had more psychosocial risk factors and more serious conduct problems. They also explored whether gender, self-concept,

attention deficit hyperactivity symptoms or internalizing behavior differentiated these children from those not cruel to animals   They first compared mental health clinic referred children who were identified as cruel to animals or not by the CBCL to a community sample. Second, they followed up with interviews of parents (mostly mothers), teachers and the children themselves. Third, rather than examining cruelty to animals in detail, demographics, and family functioning, self-perception and depression symptoms were assessed. Questions included whether or not children with conduct problems who have been cruel to animals have different self-perceptions, more severe conduct issues, internalizing symptoms or adverse psychosocial situations as compared to children who have not been cruel to animals, with or without other conduct issues.

This study involved three groups totaling 178 children: 40 who were cruel to animals and clinic referred, 101 who were not cruel to animals and clinic referred, and 37 who lived in the community. The average age of the sample was 8.4 years and included both males and females. The community sample had a statistically significant larger number of females (Luk, Staiger, Wong & Mathai, 1999). Demographics were combined into a Social Adversity Scale which showed that the two clinic groups were significantly different from the community group, with greater adversity, but were not different from each other. Significant separate items in this scale that demonstrated this pattern included younger parents, more unemployment, lower income and parents who were separated.

MANOVA results indicated that the "cruel to animals" group differed from the other two groups. The two clinical groups had more internalizing and externalizing problems, as shown by parent and teacher ratings. There were no significant differences between the two clinic groups on attention deficit hyperactivity ratings or in depressive

symptoms. However, as measured by the Eyberg Child Behavior Inventory (Eyberg & Ross, 1978), the "cruel to animals" group showed a statistically significant greater number and severity of problem behaviors as compared to the other clinic group. There are trends in their data towards children who are cruel to animals being male and originating from families with greater difficulty in functioning. Larger numbers may be needed to confirm these trends. Finally, based on analysis of the Self-Perception Profile for Children (Harter, 1982):

> There is evidence that the older children who are CTA [cruel to animals] have a highly elevated self-perception. In particular, they rated themselves as significantly better at scholastic tasks than the non-CTA group, which contrasted with their mothers reporting them as significantly poorer than the non-CTA group in scholastic performance according to the CBCL. (Luk, Staiger, Wong & Mathai, 1999, p. 34)

The authors feel that this finding may relate to the work of Frick, O'Brien, Wootton and McBurnett (1994) on extending the concept of psychopathy to children. The elevated feelings of self-worth may relate to lack of empathy, and the association with cruelty to animals may indicate it is a risk factor for more serious conduct problems. More research, however, is needed to follow up on this finding.

In line with the preceding focus on the possible contribution of particular traits to the development of cruelty to animals, Dadds, Whiting and Hawes (2006) examined a community sample from Australia. They write that

> despite much interest in CCA [childhood cruelty to animals] as a risk factor for later violence, little research into its early

manifestations has been undertaken, and little is known about

the relationship of CCA to the various antisocial pathways

articulated in recent developmental literature. (p. 412)

These authors administered the Children and Animals Inventory (CAI, Dadds, Whiting,

Bunn, Fraser, Charlson & Perola-Merlo, 2004)) as a measure of child cruelty to animals

which incorporates the nine dimensions of cruelty hypothesized by Ascione, Thompson

and Black (1997) to capture the construct of deliberate cruelty to an animal. Dadds,

Whiting and Hawes (2006) set out to "examine the relationship between cruelty [to

animals] and CU [callous unemotional] personality traits" (p.415). They also investigated

the input of family demographics and family conflict to see if there were interacting or

diverging pathways to cruelty to animals.

Dadds, Whiting and Hawes (2006) hypothesized that CU traits, the early

psychopathy model, would predict childhood cruelty to animals regardless of family

background issues. Examining a community sample of 131 school children, ages 6-to-13,

from Australia, results indicated that externalizing behavior and CU traits best predicted

animal cruelty regardless of family issues for males whereas CU traits best predicted

animal cruelty for females. Both linear and logistic regression provided separate analyses

for parent and child reports. The measure of animal cruelty used was the CAI (Dadds,

Whiting, Bunn, Fraser, Charlson & Perola-Merlo, 2004). CU traits were operationalized

using the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) with the

conflict subscale of the Family Environment Scale (Moos & Moos, 1981) as a measure of

family conflict (Dadds, et al., 2006). The authors interpret their findings as supporting the

hypothesis that CU traits have a unique relationship to acts of cruelty, particularly for

child reports of their own behavior. Parent reports indicated incomplete knowledge of the extent of children's animal cruelty; thus, some of the behavior was secretive and successfully hidden. This in turn implies a level of behavioral control "consistent with the construct of CU traits that emphasize a cold, dispassionate style with behavior driven by purposeful sensation seeking" (Dadds, et al., 2006, p. 425). Because much research on animal cruelty involves clinical or forensic samples, it is possible the associations with family dysfunction mask a separate developmental pathway for cruel as opposed to aggressive or generally antisocial behavior.

Also important in the research conducted by Dadds, ET al. (2006) are the indications of separate developmental pathways for males and females. There is an interaction effect between CU traits and externalizing behavior problems for boys but not for girls. For females, only CU traits were strongly predictive of animal cruelty. Girls may be at risk for animal cruelty if they exhibit CU traits even in the absence of externalizing behaviors. This may shed light on the frequent findings of childhood animal cruelty as primarily a male behavior (Dadds, et al., 2006).

Research on the Development of Empathy in Early Childhood

According to Zahn-Waxler, Radke-Yarrow, Wagner and Chapman (1992)

as children begin to differentiate self and other during the

second year of life and hence to develop understanding of

others as separate beings, their emotional involvement in

another's distress begins to be transformed from personal,

self-distress to sympathetic concern for the victim. (p.126)

Their research involved assessment of children (17 males and 18 females) through the second year of life during which mothers recorded their child's responses to others' emotions both as witnesses and causal agents. For example, responses to taking a toy from a sibling who then cried and seeing mother drop something on her foot would both be recorded. Mothers were also instructed to feign situations in which both positive and negative child reactions would be expected. Researchers visited monthly to examine the reports and assess ongoing development. At age 2 laboratory simulations involving the child and his or her friends were conducted as well.

Results indicated that the responses of children to the emotional state of others undergo substantial change during the second year of life. ANOVAs showed significant increases in prosocial behaviors such as comforting or trying to help whether or not the incident was witnessed or caused by the child. MANOVAs indicted significant increases in empathy defined as facial and verbal expressions of concern or contrition and hypothesis testing defined as "attempts to label or understand the problem" (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992, p.129). In terms of nonprosocial behaviors such as self-distress (that is child is too distressed to respond), positive emotion at another's distress and aggression, only aggression increased with age.

There was a statistically significant gender difference in that girls showed more empathy than boys but only in situations that they had observed rather than caused. Boys showed more aggression than girls in situations that they had caused but both genders showed more positive affect to distress that they had caused as opposed to witnessed. There seems to be a difference between reactions to witnessed and accidental harm versus caused harm in that caused harm elicited "more enjoyment, more aggression, more

personal distress, less concern for the other and [children] were less likely to explore the reasons for distress than when they witnessed distress as bystanders" (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992, p.134). Differentiating between deliberate, accidental and witnessed harm may be important in ongoing empathy research as well as in how primary caregivers respond to children's actions in these situations.

Young, Fox and Zahn-Waxler (1999) explored the relationship between temperament and empathy in 2-year-olds. They predicted that

> the socialization history and the established attachment
> relationship with the caregiver would make individual
> differences in temperament less relevant and predictive of
> empathy in these familiar social contexts. We expected
> children to engage in more empathy toward mothers than
> toward an unfamiliar victim, regardless of temperament.
> However, we examined the possibility that the contrast
> might be most marked for children who were selected as
> high in motoric reactivity and high in negative affect as
> infants [an inhibited temperamental profile]. (1999, p.1191)

The researchers also raised the possibility that children with a different temperamental profile distinguished by low arousal and low motor activity in infancy might also show marked differences in empathic responding at age 2. In this pattern of response the low reactivity rather than the over reactivity of the inhibited child may lead to less empathic responses.

The procedure for the study of temperament and empathy involved a visit when the infant was 4-months-old to assess temperament followed by a laboratory visit at 24-months-old. The fifty children (22 females and 28 males) fell into three groups based on the initial assessment of temperament: 8 girls and 7 boys with high motor arousal and negative affect, 7 girls and 11 boys with high motor arousal and positive affect and 7 girls and 10 boys with low motor arousal and low affective response. The simulations at 2-years-old consisted of the mother and a female researcher each pretending to hurt themselves and expressing pain as a result. As predicted the children showed more empathy toward their mothers than toward the female researcher. This may also reflect the primacy of the mother-child relationship in which the child is dependent on the mother for both physical and emotional needs. In terms of empathy response however, children who as infants showed low motor arousal and low affective response demonstrated the least empathy toward the female researcher and were less aroused by her distress than the other two groups. The group with high motor arousal and high negative affect as infants fell in between the low group and the high motor arousal, high positive affect group which showed the most empathy toward the researcher. No gender differences were noted. The researchers conclude that

> low levels of physiological arousal and motor reactivity are
>
> not, in and of themselves, necessarily precursors of
>
> problem behavior. However, in conjunction with family
>
> adversity, harsh parenting, and a callous social climate, a
>
> tendency to be nonreactive to distress could interfere with

the development of empathy during a critical, formative

period. (Young, Fox & Zahn-Waxler, 1999, p.1195)

Miller and Eisenberg (1988) conducted a meta-analysis of literature related to

empathy and aggressive and externalizing behavior from early childhood through

adulthood. They considered both empathy and sympathy as equivalent to empathy on the

basis that it is sometimes difficult to ascertain if researchers are examining empathy,

sympathy or both. Both concepts involve an affective response to another's distress, the

primary difference being that with empathy the emotional response is identical or similar

while with sympathy the response is more concern for the other person's situation

(p.325). Their results indicated that "empathy is negatively related to aggression,

externalizing and antisocial behaviors, and enactment and receipt of physical abuse"

(Miller & Eisenberg, 1988, p. 338). The associations were in the low-to-moderate range

and influenced by the method of assessing empathy and aggressive behaviors. The

picture and story, facial expression and laboratory simulation methods generally used

with younger children were not as valid as the questionnaire methods usually used with

older children and adults. The results for younger children were in the expected direction

of a negative relationship between aggression and empathy but were not statistically

significant. Miller and Eisenberg (1988) cite several possible reasons for this: the

pictures and stories involve hypothetical events with different emotional content

requiring young children to rapidly shift emotional states; children may try to please the

researcher; and younger children may be less consistent in their responses than older

children. Finally, many researchers have not "differentiated between empathizing with

positive and negative emotions" (Miller & Eisenberg, 1988, p. 339). The researchers

conclude that it is not possible to determine whether the results for younger children are due to the methods used or indicative of age differences in the relationship between empathy and aggression: "the moderating effect of age on the relation between empathy and aggression is an important issue for future research" (Miller & Eisenberg, 1988, p. 340).

Assessing empathy in young children is more difficult because they cannot respond to questionnaires as older children can. The research of Zahn-Waxler, Radke-Yarrow, Wagner and Chapman (1992) and Young, Fox and Zahn-Waxler (1999) used laboratory simulations and analysis of facial expressions to assess empathic responses in very young children but did take a developmental perspective with primary caretakers recording children's behavior over time in one study (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992) and assessment of temperament in infancy with follow up at 2-years-old in the other (Young, Fox and Zahn-Waxler (1999). It seems more research with more young children will be necessary to fully understand the development of empathy in younger children but there is some empirical support for the early development of empathy along with some indication of gender differences in that girls show more empathy to witnessed harm than boys do. There is also some support for the possibility that some temperamental profiles – inhibited and uninhibited children – may have more difficulty in developing empathic responses particularly in adverse circumstances. Aggression may also impact the development and expression of empathy.

Research on Parental Style in Relation to Childhood Empathy and Behavioral Issues

Robinson, Zahn-Waxler and Emde (1994) examined the "influence of maternal warmth and negative control" on the development of empathy in children with initial data

collected at 14-months-old and again at 20-months-old (p.127). Children were selected from a larger sample of twins based on their responses to distress simulations involving their mothers and a female researcher and placed in one of three groups: low, mid-range and high empathic responsiveness. The total sample consisted of 83 females and 75 males. Twin pairs with differing developmental profiles were included representing 54 children in the total sample. The simulations were repeated when the children were 20-months-old to assess change over time.

In terms of maternal warmth children who remained high in empathy at 20 months had mothers who scored highly on this concept as measured by the researchers. Maternal warmth was also associated with female children increasing or decreasing in empathy depending on whether or not their mothers showed more or less warmth toward them. For boys high levels of maternal warmth correlated with remaining in the middle range of empathy while lower scores in maternal warmth were associated with either increases or decreases in empathy over time.

For the construct of negative maternal control, high negative control was related to decreases in empathy by children in the high and middle range groups while low negative control was associated with increases in empathy for the middle range group and stability in the high empathy group. There were not statistically significant effects for initially low empathy range children with maternal warmth or negative control orientation, however, "both boys and girls who would change from low to mid-range levels of empathy were reported by their mothers to express more positive emotions than those who would remain low" (Robinson, Zahn-Waxler & Emde, 1994, p.141). The researchers conclude that child temperament as measured by positive and negative

emotionality, maternal warmth and degree of negative control may interact to affect changes in children's level of empathy in ways that their small sample size was unable to detect. However the findings that indicate drops in empathy from 14-to20-months under certain circumstances are of concern as is the finding that "children who remain low in empathy throughout early childhood may be at risk for significant peer adjustment difficulties given the important role of empathy in regulating interpersonal relationships"(Robinson, Zahn-Waxler & Emde, 1994, p.143).

The stability of behavioral problems from preschool age to early school age children was examined in the context of the emotional regulation between mother and child (Cole, Teti & Zahn-Waxler, 2003). Children were recruited for the study through newspaper advertisements and flyers with a final sample size of 85: 53 boys and 32 girls whose average age was 5-years-old. Level of behavioral difficulty was measured utilizing the CBCL at initial assessment with the CBCL and the Teacher Report Form version (TRF) of the CBCL used at the second assessment. At this point the children were in first or second grade. The TRF provided a separate assessment of behavioral problems in a different environment. Based on the CBCL and TRF scores, 30 children with behavioral problems remained stable over time, 14 improved, 33 were stable with no significant problems and 3 children became worse (5 children had dropped out by the second assessment point). The study focused on "the continuum of children who present as potentially at risk in order to ascertain which patterns of mutual regulation were associated with stable concerns and which were not" (Cole, Teti & Zahn-Waxler, 2003, p.4).

The mutual regulation of emotion between mother and preschool age child was assessed during a waiting task during which mothers completed the Differential Emotions Scale (DES; Izard, Dougherty, Bloxom & Kotsch, 1974) as a second assessment of how the mothers handled emotion. During this wait children had one toy to play with and were told that when their mothers were done they would open the surprise gift placed nearby. Data were thus collected on observed behaviors and responses of mothers and children as well as on how mothers actually felt during the waiting task. Results showed that mothers' contingent emotions, that is, how they responded to the emotional displays of their children, varied in some respects. Mothers were twice as likely to respond positively to displays of anger by boys as opposed to girls. However, mothers were more likely to respond positively to girls' positive expressions for attention than to boys' positive attempts to engage them. Both of these findings were statistically significant (Cole, Teti & Zahn-Waxler, 2003, p.9).

"The mutual regulation model predicts that mutually positive exchanges and responsiveness to child distress promote child adaptation" (Cole, Teti & Zahn-Waxler, 2003, p.13). The results of this study indicate that for those children with elevated levels of behavioral difficulty as measured by the CBCL those who improved over time differed from those whose problem behavior continued in several ways. Mothers of children who improved responded more positively to their children's expressions of positive emotions and showed less anger toward children's angry outbursts as compared to the mothers of children whose problems persisted. In addition, improved children were more likely to react in a neutral manner to their mothers' expressions of positive emotion and less likely

to exhibit positive emotionality in response to maternal anger (Cole, Teti & Zahn-Waxler, 2003, p.13).

The researchers consider the finding that behavioral problems may improve or remain stable based on the quality of mutual anger regulation between preschool age children and their mothers is particularly significant: "the data indicated that maternal contingent anger exacerbated conduct problems and was linked to stability of problems and that maternal positive emotion was associated with improvement" (Cole, Teti & Zahn-Waxler, 2003, p.14).

Longitudinal research conducted by Olson, Bates and Bayles (1990) examined the relationship of child impulsivity and self-control to temperament, quality of attachment, parent-child interaction and cognitive competence. Cognitive competence is defined as the ability to use problem-solving, memory and internal regulation as well as verbal skills to manage impulsivity. The research questions investigated were whether or not the quality of the parent-child relationship and parent-child interaction predicted child impulsivity over time, when during the first two years of life does social interaction (that is, between mother and child) become predictive of impulsivity and are there any relationships between social interaction and impulsivity and cognitive competence or temperament. The researchers predicted that maternal warmth and responsiveness would be positively related to the ability to self-regulate while a more punitive maternal style would be negatively related to child self-regulation.

Eighty mother-child dyads participated (44 boys and 36 girls) in all assessments at 6- 13- and 24-months-old and 6-years-old. The infant and toddler assessments involved measures of mother-child interaction including discipline techniques and verbal

stimulation. Child temperament was assessed at 24-months-old. Impulse control was assessed at 6-years-old with a variety of measures that included ability to delay opening a gift while completing a task and walking and drawing a line slowly.

Only 68 dyads were assessed for attachment with 66% securely attached, 13% anxious-avoidant, 16% anxious-resistant and 5% mixed anxious pattern (Olson, Bates & Bayles, 1990, p.322). Findings showed that mother-child interaction during the second year was predictive of impulse control at age 6. There was no relationship to later impulse control based on interaction during the first year of life. There were gender differences in the second year pattern: boys with secure attachments and whose mothers were consistent and used nonpunitive discipline techniques exhibited greater self-regulatory ability. Secure attachments were not predictive of impulse control for girls although high levels of maternal responsiveness and intellectual stimulation were predictive of higher levels of task orientation (Olson, Bates & Bayles, 1990, p.327). Higher cognitive competence was predictive of greater impulse control for both genders while temperament was not. Multiple regression analyses indicated that the quality of parent-child interaction contributed independently to the variance in impulse control beyond the shared variance with cognitive competence.

The researchers note that the finding that attachment and maternal discipline style were unrelated to impulse control for girls was unexpected and that "the correlations were marginally significant and in the expected direction" (Olson, Bates & Bayles, 1990, p.331). They believe it may be due to their choice of measures in that children were only assessed for impulse control in infancy and toddler hood with their mothers and not in other situations. This possibility should be examined in future research.

Thus there is empirical evidence that the quality of the parent-child relationship has an impact on the social emotional development of children in regards to the growth and expression of empathy as well as the ability to self-regulate and manage aggression. Parental empathy, warmth and responsiveness are correlated with more optimal outcomes for young children while parental anger, punitive discipline techniques and lack of warmth are related to the presence and stability of behavioral problems. The interactions are complex but particularly during the second year of life when children are becoming more autonomous, other-oriented and aware of the world beyond themselves and their primary caretakers harsh or nonresponsive parenting can result in difficulties that continue into preschool and beyond.

Summation

This literature review has examined some extant research on the issue of childhood cruelty to animals. Major findings include lack of information on the prevalence of childhood animal abuse in the general population (Ascione, 2001) although some information on prevalence is provided in the manuals for the CBCL. Boys and girls not referred for mental health services, ages 4-to-5, exhibited rates of approximately 10 % and 5% respectively. Rates for children referred for mental health services, ages 4-to-5 are higher: 28% for boys and 20% for girls (Achenbach, 1991b). Boys are reported as exhibiting the behavior of cruelty to animals at higher rates than girls (Baldry, 2003; Dadds, Whiting, Bunn, Fraser, Charlson & Pirola-Merlo, 2004); the information provided by the CBCL for both referred and non-referred children indicates this as well.

Gaps in the literature include the relative lack of information on females as opposed to males. Girls may experience a different trajectory (Dadds, Whiting & Hawes,

2006). This requires further study. More information on community samples is required as most research has involved prisoners, domestic violence survivors in shelters and clinical populations. The actual incidence of childhood cruelty to animals in the population remains largely unknown. Also unknown are what behaviors may be correlated with cruelty to animals in the general population. This information will be helpful in illuminating developmental pathways and informing treatment and prevention.

As to the origins of childhood animal cruelty and what correlates are associated with this behavior Ascione (2005) has hypothesized that for younger children the behavior may arise due to developmental issues (poor motor control) and lack of knowledge (not realizing their behavior is hurtful) about animals. No research located examined correlates of hurting animals in the 4-to-5-year-old age group to be considered in this study.

Retrospective studies on prison populations indicate incarcerated adults with violent criminal histories have a high incidence of childhood and adolescent animal cruelty. They also experienced high rates of physical abuse and domestic violence in their childhoods (Kellert & Felthous, 1985). Research on child samples has also found associations between witnessing domestic violence and child cruelty to animals (Currie, 2006) and physical abuse and animal cruelty (Ascione, Friedrich, Heath & Hayashi, 2003).

Other studies have indicated that child animal cruelty is predicted by callous unemotional traits that place a child at risk for antisocial behaviors and failure to develop empathy (Luk, Staiger, Wong & Mathai, 1999; Dadds, Whiting & Hawes, 2006). The study by Luk, Staiger, Wong and Mathai (1999) also found poorer family functioning in

the families of children who were cruel to animals although Dadds, Whiting and Hawes (2006) did not find this to be the case in their sample.

Thus, findings in the area of childhood cruelty to animals have been mixed. One of the problems has been lack of a clear and consistent definition of animal abuse. This has been somewhat ameliorated by researchers such as Ascione (e.g. 2005) who has developed a widely used definition of childhood animal abuse and a measure, the Children and Animals Assessment Instrument (CAAI; Ascione, Thompson & Black, 1999). Another issue has been the lack of interest in this area; the question of whether or not a child has ever hurt animals is not frequently asked by mental health and child welfare workers. Finally, even in clinical samples or samples of children exposed to various forms of violence, most do not hurt animals.

Thus, the question becomes what is different about the subset of children who do hurt animals. A further question is how, if at all, this relates to problems these children may be experiencing, such as other types of violence, antisocial behavior in general, oppositionality and social emotional issues. Another line of inquiry involves examining the correlates of conduct disorder and oppositional defiant disorder to define possible subsets of children diagnosed with these disorders and their conjunction with particular traits. These traits have been labeled callous unemotional and include lack of empathy and remorse, high sensory arousal seeking and fearlessness. Finally, family issues such as exposure to physical abuse and domestic violence as well as general familial dysfunction may have an impact on whether some children hurt animals.

The current study seeks to explore some of these issues in samples of children aged approximately 4-to-5-years old not selected on the basis of hurting animals. The

hypotheses predict the behavior will be engaged in more frequently by males rather than females and that hurting animals will correlate with aggressive and other problematic behaviors. Additional predictions include a positive relationship between hurting animals and various forms of physical abuse, males who hurt animals will show more externalizing behaviors than females who do so while females who hurt animals will demonstrate more internalizing behaviors then males who engage in this behavior.

The research questions will examine caretaker issues such as depression and risk for alcohol use as well as attitudes towards parenting. If developmental delays correlate with hurting animals this can be compared with the hypothesized correlation between hurting animals and externalizing problems to see which are the stronger correlates. The exploratory nature of this study seeks to provide some empirically based information on whether or not the behavior of hurting animals in young children is related to the developmental issues as hypothesized by Ascione (2005) or if the behavior may also be related to the types of externalizing behaviors found for older children and adolescents.

<div align="center">Conceptual Framework and Questions</div>

Bioecological Model

One way to view the behavior of hurting animals is through the bioecological model. As elucidated by Bronfenbrenner and Morris (1998) the bioecological model

> encompasses particular forms of interaction between
>
> organism and environment, called *proximal processes*, that
>
> operate over time and are posited as the primary mechanisms
>
> producing human development. However, the power of such
>
> processes to influence development is presumed, and shown,

to vary substantially as a function of the characteristics of

the developing *Person*, of the immediate and more remote

environmental contexts and the *Time* periods, in which the

proximal processes take place." (Bronfenbrenner and Morris,

p. 994)

Based on the animal abuse literature, children who have hurt animals should show

heightened difficulty in particular areas. This can include behavioral difficulties, peer

problems and poor frustration tolerance. They may also have been exposed to various

types of maltreatment such as physical abuse, domestic violence and sexual abuse. The

core concept of the model, process, is exemplified by proximal processes which interact

with the characteristics of the individual in a given environment and influence

developmental outcomes. If an appropriate environment is not supplied, developmental

potential may not be realized and problems will arise in the developing person. For

infants and very young children the relationship with their primary caretaker, usually the

mother, should provide the sense of safety and security that allows them to progress in

their development. The primary caretaker does not only provide safety and security,

however. She or he should respond to the developing child in ways that reflect back

pleasure in the relationship. This then causes the infant to reciprocate. When this mutual

interaction does not happen development may be delayed or redirected into less desirable

pathways. As the child becomes older the primary caretaker should continue this

interaction while encouraging age appropriate autonomy and exploration. Also as the

child develops he or she becomes more involved in the larger environments of the family,

extended family and neighborhood and for many children, day care or preschool settings.

Negative experiences in any of these areas can also impact optimal development particularly if the child has not attained the requisite emotional base from the relationship with the primary caretaker.

Animal abuse by children has been conceptualized as related to various environmental factors such as abuse, neglect, sexual abuse and exposure to and being a victim of familial violence. As far as is presently known, only a subset of children exposed to such traumas hurt animals so this study seeks to explore in what areas and in what ways children who hurt animals may differ from their peers to see if any conclusions can be drawn as to possible correlates of this behavior. It also has been theorized that children with callous unemotional personality traits and a corresponding lack of empathy abuse animals regardless of trauma history and that this behavior may be indicative of continuing problem behaviors.

Examining the behavior of cruelty to animals in early childhood can serve to illuminate a gap in the literature which has relied on retrospective adult reports to a great extent (Duncan & Miller, 2002). It is also an opportunity to utilize a bioecological approach, insofar as the data allow, at an early point in the lives of a group of children who have identified risk factors from birth. The presence of this behavior may indicate that something in the developmental process has gone awry. Identification of potential contributions revealed in the literature such as various types of abuse, predisposition to certain types of behavior on the part of the child and other bioecological factors coupled with statistical analysis provide a method to show how this may happen.

Bronfenbrenner and Morris (1998) stress this point writing that

The developmental impact of proximal processes on

children growing up in disadvantaged or disorganized

environments is expected to occur mainly for outcomes

reflecting developmental *dysfunction.* By contrast, for

outcomes indicating developmental *competence,* proximal

processes are posited as likely to have greater impact in

more advantaged and stable environments (pp.1001-1002).

Thus, for children exposed to various types and degrees of instability, toxic proximal processes can result in individual child developmental dysfunction. (Bronfenbrenner & Morris, 1998).

Proximal process cannot be directly examined in the dataset from LONGSCAN utilized. But the data collected by the originators of the study are designed to capture the spectrum of environmental, behavioral, temperamental, familial, day care and neighborhood contexts of the children across a spectrum of risk. The focus then becomes ascertaining whether or not there are any correlates that serve to distinguish the subpopulation of children who hurt animals from their peers who do not and what inferences can be drawn from this information.

According to Bronfenbrenner and Morris (1993) proximal processes are the bedrock of the bioecological model. Examining them either directly or indirectly is crucial to research initiatives both for confidence in the results and for further theory building. Children in dysfunctional environments may respond to their situations with their own dysfunction. Parents, in responding to their children's needs, should assist them, over time, in better managing these behaviors.

With respect to problems of dysfunction, in deprived

environments there is usually a match between young

children's needs and their parents' capacity to meet those

needs. This does not mean, however that children in such

environments will end up functioning as well as their

agemates growing up in more favorable circumstances, but

rather that over similar periods of time, they will show

greater improvement in control over their own problem

behaviors as a function of parental responsiveness.

(Bronfenbrenner & Morris, 1998, p.1002)

Children who hurt animals may not be receiving the necessary support from their parents

to manage their behaviors which then do not show improvement over time.

In addition to outcomes of competence versus dysfunction, the person

characteristics of disposition, resources and demands are "influential in shaping the

course of future development through their capacity to affect the direction and power of

proximal processes through the life course" (Bronfenbrenner & Morris, 1998, p.995).

Disposition seems equivalent to temperamental characteristics while resources are the

abilities, knowledge, experience and skills necessary for successful functioning at a

particular developmental stage. Demands also seem to reflect aspects of temperament as

they "invite or discourage reactions from the social environment of a kind that can foster

or disrupt the operation of proximal processes" (Bronfenbrenner & Morris, 1998, p.995).

The combination of these three aspects of the person in interaction with the environment

affects the ongoing developmental trajectory a given individual.

A final area of developmental focus is that between outcomes in the realm of interpersonal relationships as opposed to those involving the physical environment. (Bronfenbrenner & Morris, 1998, p.1023). The physical environment can invite or discourage manipulation and exploration and determine if such behaviors are safe and supported. For a child, it involves opportunities for play and development and pursuit of interests. For any individual, feelings of mastery and tasks of increasing complexity are important. Aside from physical constraints such as no playgrounds for safe, outside play, environments can hinder the possible at any age by exerting invisible barriers to development based for example, on race, gender and class. Exactly how these factors affect development is unknown but "developmentally generative features of the surroundings have greater impact in more stable settings…[and] they also function as a buffer against the disruptive influences of disorganizing environments" (Bronfenbrenner & Morris, 1998, p.1014).

Young children who have hurt animals can then be viewed as responding in a particular way based on some set of stressors in conjunction with developmental disruption and their own mix of resource and demand characteristics. Human-animal interactions contain elements of the social and objective spheres and can even be perceived as attempts at mastery gone wrong or reinforced in such a way that dysfunction rather than competence is intensified.

Bronfenbrenner and Morris (1998) refer to research utilizing the bioecological model as "science in the *discovery mode* rather than in the *mode of verification*" (p.1000). Although examination of the literature has provided direction and suggestions as to what factors have shown relationship to child animal cruelty, this study also will seek to

examine additional factors as delineated in the bioecological model. Thus information on maltreatment experiences of the child can be examined as well as information about neighborhood, home environment and day care experiences. Inclusion of all these factors has seldom been done when investigating the issue of animal cruelty by children.

Social Learning Theory

Bandura and Walters (1963) set out a series of social learning principles that "seek to explain deviant behavior in terms of classes of events that appear to be equally important for the establishing of nondeviant patterns of response" (p.44). They explain and illustrate these principles in the context of child development and while they recognize the importance of temperament, they primarily focus on the social learning aspects of behavior.

Children learn through observation, imitation and reinforcement. This learning may be vicariously reinforced where the "behavior of an observer is modified on account of the reinforcement administered to a model" (Bandura & Walters, p.4). When children imitate the behavior of successful models they may be reinforced as well. These behaviors can be quickly established with modeling and differential reinforcement. Differential reinforcement by caregivers can result in the establishment of prosocial behaviors in children as well as high intensity, unwanted behaviors – strong attention-seeking behaviors that caregivers have intermittently reinforced by only responding when children begin to escalate or are already out of control.

This study examines a particular behavior – that of young children hurting animals – that may be theorized as resulting from social learning that has led to unwanted behavior in a different context from where it may have been originally learned. There are

several possible reasons for this. The concepts of generalization and discrimination are relevant here. "Learned patterns of response tend to generalize to situations other than those in which they were learned, the extent of *generalization* being a function of the degree of similarity between the original situation and the novel sets of cues" (Bandura & Walters, 1963, p.8). Children who have difficulty with frustration tolerance may hurt animals based on modeling at home or elsewhere that has taught them that acting out is acceptable or at the least, not consequenced with any consistency. Acting out behaviors may also be differentially reinforced because age appropriate requests to have needs met are ignored until escalation occurs. Children may then direct this behavior towards a new target – an animal - based on proximity, availability or the fact that some animals may not respond with aggression. Regardless, a maladaptive behavior has started that can be difficult to extinguish.

Discrimination as well as generalization is necessary for effective social learning. Certain behaviors are acceptable in some situations but not in others. Particularly for young children learning when something is acceptable and when it is not is both crucial and difficult. Bandura and Walters (1963) utilize physical aggression as an example. It is not acceptable to hit others although it may be acceptable if they hit you first. If what children have observed is inconsistent and if their own behaviors are erratically reinforced or consequenced the behavior of hurting animals may become acceptable and habitual to them.

In regards to aggression Bandura and Walters (1963) found that the parents of aggressive boys were more likely to allow aggressive behavior than the parents of nonaggressive boys although not if it was directed towards the parents (Bandura &

Walters, p.119 citing Bandura & Walters, 1959). Thus parental discriminative training may reinforce aggression in certain situations. An experimental study by Walters and Brown (1963) with seven year old boys indicated that "intermittently reinforced aggressive responses not only are more persistent but also tend to generalize to new situations" (Bandura & Walters, 1963, p.123 citing Walters & Brown, 1963). The study involved receiving marbles on various fixed ratios for hitting a large doll followed by a structured session of physical contact play and free play. The children who had received the most intermittent reinforcement (a 1:6 ratio) were the most aggressive in the play sessions. According to Bandura and Walters (1963) "this study demonstrates that aggressive responses that are acquired through intermittent reinforcement in a noninterpersonal, nonfrustrating situation may be subsequently utilized to overcome blocking or thwarting in interpersonal situations" (p.124). This illustrates how children could begin to engage in hurting animals especially if predisposed by how aggressive behavior has been managed in their lives. If aggressive behavior has only been inconsistently redirected or consequenced children may act out in an aggressive manner to peers or animals particularly when frustrated or angry.

Attachment and Trauma

The importance of a secure attachment for healthy development is well documented (Bowlby, 1969). A securely attached child as he or she develops will use the primary attachment figure (usually the mother) as a base from which to explore the world returning as needed for reassurance or guidance. This relates to the proximal processes described by Bronfenbrenner and Morris (1998) as ideally leading to positive reciprocal interactions between mother and child that serve to enhance the growth of the developing

person. If this process of attachment follows a negative trajectory the relationship will

be difficult and attachment problems may result. Attachment problems may arise for a

variety of reasons, for example, if the mother is unsure or nervous as to how to

adequately comfort her child. Romer Whitten (1994 citing Ainsworth, 1978) describes

three types of attachment: secure, approach-avoidance and an ambivalent type. The

secure type is considered a healthy attachment characterized by the mutual joy at

reunification after separation which the mother reinforces with physically and verbally

nurturing behavior. Securely attached children are more social, explore the environment

using the mother as a secure base and show less frustration (Ainsworth, 1978, p.166).

The approach-avoidance attachment is evident in situations where the child is

distressed at separation yet does not seek the mother out when reunified. The mother

does not offer physically nurturing behavior to the child at reunification which may

explain why the child wants to be in close proximity yet no longer seeks out physical

closeness. There may be many reasons why the mother does not offer sufficient

nurturing behavior to the child: maternal depression, anxiety about parenting ability, her

own personality style or her own childhood experience. It can also be a combination of

these factors and others. A difficult to soothe infant may challenge the capacity of a

parent to offer comfort. Failure to accomplish this may cause the mother to withdraw

from the child and the consequence over time is an approach-avoidant attachment. This

type of attachment difficulty can lead to problems with empathy, social skills deficits,

aggression and lack of ability to appropriately explore environments (Ainsworth, 1978,

p.166).

The ambivalent attachment is characterized by lack of distress at separation from the primary caregiver as revealed in a specific situation. These children are difficult to comfort and express anger towards their mothers more than children in the other attachment categories. These children know how to seek out comfort but are hesitant to do so and seem inured to separation from their mothers. Possible consequences of this type of attachment include emotional dysregulation, over dependence on caregivers and lack of problem solving skills all of which may impact optimal development (Ainsworth, 1978, p.315). The differences between anxious-avoidant and ambivalent attachments are subtle and seem qualitative in nature. They may reflect differences between outright rejection and never knowing how requests for comfort will be received.

The development of empathy is impacted by insecure attachments in that the primary caretaker, usually the mother, does not respond to the child in a warm nurturing manner with any consistency. She may also not teach the child to be kind or provide redirection in specific situations when empathy is called for. Thus the child is not learning empathic behavior nor is it being modeled in the relationship between the child and his or her mother (Robinson, Zahn-Waxler & Emde, 1994, p.127).

The addition of maltreatment further complicates the development of healthy attachments between young children and their mothers or other primary caretakers. A fourth category of attachment exhibited by maltreated children also results in insecure attachments. Children who are maltreated by primary caretakers are either oppositional or overly compliant. These anxious attachments cause a disorganized response by the child who may express anger and avoidance towards the parent yet act very needy. Abused children are usually oppositional or submissive while neglected children have

low expectations that their needs will be met. Neglected children may become parental caretakers in an effort to remain close to the attachment figure or become very independent. The difficulties that adhere to the anxious-avoidant and ambivalent attachment categories are exacerbated for maltreated children. They are challenged in effectively exploring their environments, may demonstrate high levels of aggression or be the victims of others' aggression. Their ability to successfully develop the skills needed for effective social interaction and appropriate peer relationships is impeded by the problems in the primary attachment relationship (Romer Whitten, 1994 citing Crittenden & Ainsworth, 1989).

Egelend, Sroufe and Erickson (1983) illustrate this point in their examination of the developmental consequences of different patterns of maltreatment by mothers towards their children. At about 3.5 years, the children of mothers who were physically abusive, verbally abusive, psychologically unavailable or neglectful all exhibited low ego control, poor impulse control and difficulty moderating their emotional responses in preschool. While attachment issues with mothers who were unable to provide consistent nurturance are a factor in these outcomes the differential reinforcement of high intensity behaviors seems to be involved as well. Neglected and abused children were hyperactive and distractible; all four groups showed significant negative affect as compared to controls. The behaviors they had learned were not serving them well in preschool.

Thus trauma adds even more complexity. Maltreatment by primary caregivers is traumatic to the child when it results in the types of behaviors associated with post traumatic stress reactions. These include heightened anxiety, hypervigilance and alarm and numbing responses. Children may also reenact traumatic events in their play.

Trauma may cause children to be constantly fearful, avoid previously comforting people and things and cause them to act out for a variety of reasons: fear, anger and as a way to ease their distress and achieve some sense of power and control. For some children this may involve hurting animals. For children in particular, "disorganized or agitated behavior" and nightmares with no identifiable content may also occur (DSM-IV-TR, 2000, p.219). Trauma may also arise from external events such that the child's sense of safety is disrupted and the child's belief that parents can protect him or her is compromised. Maltreatment by primary caretakers that causes a traumatic reaction in the child can result in a trauma bond.

> Theoretically, then, a trauma bond is also the internalized set of expectations a child develops regarding interactions with an abusive adult that allows the child to feel and sometimes remain safe. In an abusive interaction the child, unable to prevent the abuse, forms a set of internal cues to warn of or ward off potentially abusive interactions (Herman, 1992). These cues in turn motivate the child to behave in ways that placate the abusive adult or reflect the behavior that the abusive adult allows as acceptable. The child does not concern herself [or himself] with learning about the environment, developing more and more sophisticated ways of maintaining interpersonal connections, or learning about her own [or his own] psychological self. Her focus [or his] on the needs, wants, and emotional state of the abusive adult is her [or his] best shot at maintaining safety for herself [or himself]. Romer Whitten, 1994, p.35

Maltreatment by a primary caretaker then may result in a trauma bond between caretaker and child which can be very strong but is rooted in fear rather then the nurturance and safety of a secure bond. Table 2 illustrates the differences between attachment and trauma bonds.

Table: 2
Characteristics of Attachment and Trauma–Bond Relationships

Attachment	*Trauma-Bond*
Love	Terror
Takes time	Instantaneous
Reciprocity and caring	Domination and fear
Person is experienced as essential for survival	Person is experienced as essential for survival
Proximity → safety (pleasure)	Proximity → conflict (alarm/numbing)
Separate person dependent	Not separate person, extension of other's need
Self-mastery	Mastery by others
Autonomy-individuation	Obedient to will of other

James, 1994, p.26

A trauma bond has as its primary focal point the safety of the child from the caretaker rather than the primary caretaker as a safe refuge when needed. It thus forces the child to focus his or her energy on learning how to remain safe in part by placating the caretaker leaving little time or energy for exploration and mastery of the skills necessary for healthy development. Children with a traumatic attachment may be very attached to their primary caregivers but it is not a healthy attachment. They may wish to be with these caretakers but this is due to believing survival can only be assured when close to them. The presence and intensity of trauma bonds must be recognized and assessed especially in placement situations. This is to determine whether or not placement with the original

caretaker is warranted. In addition the ability of the child in placement to alter his or her attachment pattern with support and assistance must be considered if placement is to be successful (Romer Whitten, 1994, p.36).

One of the hypotheses for the current study is whether or not some type of physical abuse shows a correlation with the behavior of hurting animals. It is possible that children experiencing abuse may engage in this behavior more frequently than those who are not experiencing such abuse. In addition, a research question asks if there is any relationship between foster placement and children hurting animals. Children who are removed from their parents may also be more likely to engage in this behavior. In each of these situations children may be acting out traumatic experiences as well as the fear and lack of safety associated with trauma bonds between the children and their primary caretakers.

There is empirical support for the presence of heightened difficulties in multiple areas by children 3-to-14-years-old involved with CPS. In particular, aggression, delinquent behavior, post traumatic stress symptoms, depression and attention problems are most frequently reported with aggressive behavior showing the most stability over three years (McCrae, 2009, p.25). Clausen, Landsverk, Ganger, Chadwick and Litrownik (1998) found that children in foster placement from infancy through age 17 had elevated levels of externalizing and internalizing behavior problems as measured by the CBCL such that "almost two out of five children in foster care scored above the clinical cut-point on total behavior problems (p.292). Children who have experienced maltreatment and, in some cases, placement may have behavioral and mental health issues due to a combination of factors: the abuse, removal and possible trauma reactions. These children

may also have anxious-avoidant, ambivalent or trauma based attachments with their primary caretakers. If children who have begun to hurt animals are experiencing some of these risk factors for healthy social emotional development they would seem to at risk for failure to develop empathy and a continuation of hurting animals and other problematic behaviors.

Temperament

Temperament is a construct that is subject to some disagreement among leading researchers and theorists (Hill Goldsmith, Buss, Plomin, Klevjord Rothbart, Thomas, Chess, Hinde & McCall, 1987). Areas of disagreement are how much of an infant's behavior is due to temperament and what particular aspects of behavior are expressions of temperament. The extent to which temperament is part of an individual's constitution as opposed to an interactive construct is also a matter of debate. Areas of consensus include the idea that "temperamental dimensions reflect behavioral tendencies rather then map directly onto discrete behavioral acts" (Hill Goldsmith et al., 1987, p. 507). Temperament is considered to have a biological basis and is enduring although its expression may change over time for a variety of reasons. Activity level and emotionality are included by most theorists as components of temperament but other dimensions are variably supported. Studies focus on infancy due to the assumption that in infancy the relationship between temperament and behavior is direct whereas this relationship becomes more complex as an individual develops. Unique environmental situations that challenge coping skills may result in reliance on temperamental predispositions later in development. A broad definition of temperament that includes all these points is as follows:

temperament consists of relatively consistent, basic dispositions inherent

in the person that underlie and modulate the expression of activity,

reactivity, emotionality, and sociability. Major elements of temperament

are present early in life, and those elements are likely to be strongly

influenced by biological factors. As development proceeds, the

expression of temperament increasingly becomes more influenced by

experience and context. (Hill Goldsmith, et al., 1987, p. 524)

Kagan and Snidman (1991) found that children assessed in infancy and again at 9,

14 and 21 months fell into four groups: high motor activity and high crying, low motor

activity and low crying, low motor activity and high crying and finally, high motor

activity and low crying (p. 858). At the subsequent assessments the first group exhibited

high levels of fear in novel situations designed to determine inhibited versus uninhibited

reactions while the second group showed little fear. The third and fourth groups fell in

between the fear levels shown by the first and second groups. Change recorded over the

time of the assessments indicated that few fearless children became fearful while more

fearful children became less fearful. The researchers note that "this asymmetry in

behavior change is expected because more parents try to change the behavior of fearful

children than fearless ones" (Kagan & Snidman, 1991, p. 859). Additionally, their data

offer some support for the position that the difference between inhibited and uninhibited

children is qualitative rather than representing "extreme values on a single dimension of

fearfulness or sociability" (Kagan & Snidman, 1991, p.860). These researchers also

measured heart rates when the children were presented with novel stimuli and found that

"the data suggest that the Group H infants [high motor activity and crying] have a lower

threshold of excitability in the circuits that involve the amygdala and the sympathetic

nervous system than do Group L children [low motor activity and crying] – a conclusion

in accord with the extensive corpus of evidence on older inhibited and uninhibited

children (Kagan & Snidman, 1991, p.860). Inhibited versus uninhibited (or fearful as

opposed to fearless) temperamental predispositions are included in most theorists

conceptions of the dimensions of temperament (Hill Goldsmith, Buss, Plomin, Klevjord

Rothbart, Thomas, Chess, Hinde & McCall, 1987). The hypotheses for the current study

regarding aggressive behavior and attention problems in particular may be seen as

possible expressions of a more fearless temperament that in the absence of sufficient

coping skills may result in hurting animals.

Klevjord Rothbart (1981) found six dimensions of infant behavior showed

moderate stability particularly after 6-months-old: activity level, smiling and laughter,

duration of orienting (ability to focus), soothability, fear and distress to limitations (for

example while waiting for food or being changed). These dimensions formed the basis

for the Infant Behavior Questionnaire (IBQ). How temperament and its expression

affects behavior is more difficult to understand especially as individuals become older

and are subject to environmental factors and new experiences. The role of the primary

caretakers in guiding and influencing how children cope with life experiences is also

crucial in the expression of temperament. According to Hill Goldsmith, Buss, Plomin,

Klevjord Rothbart, Thomas, Chess, Hinde and McCall (1987) " we must seek an

understanding of process" in order to more fully comprehend the way that expression of

temperament interacts in a given situation (p.523). Continued empirical research on how

temperament is expressed at different ages and in different contexts is needed to further validate the dimensions of temperament and its stability over time.

Social Emotional Development in Early Childhood

Why children may hurt animals requires an examination of social emotional development in early childhood with particular attention to how empathy develops. If social emotional development does not proceed along a normal path it may impact the development and expression of empathy. This in turn may be reflected in behaviors that cause problems for the child in interacting with others and hinder his or her ongoing growth. These behaviors in children are conceptualized as externalizing and involve higher levels of aggression and delinquency as measured in this dissertation by the CBCL externalizing behavior syndrome and its two scales, aggressive behavior and delinquent behavior. Callous unemotional traits which reflect the absence of empathy have been theorized as contributing to the development of more severe conduct problems such that differences in emotional regulation result in aggressive responses with little or no remorse. These responses are characterized by difficulties in emotional and behavioral regulation and "high levels of emotional reactivity" (Frick, Cornell, Bodin, Dane, Barry & Loney, 2003, p.247). Cruelty to animals that begins in and persists throughout childhood may be one behavioral expression of failure to achieve the necessary developmental competence particularly in regards to emotional regulation, behavioral control and empathy.

The basic premise to be explored is that the interaction of the temperament of the child, parent-child attachment, parental discipline practices and traumatic experiences, all may impact child social emotional development including the development of empathy.

Temperament is defined as "inherited personality traits that appear early in life" (Stanhope, Bell & Parker-Cohen, 1987 citing Buss & Plomin, 1984, p.347). According to Kochanska (1993) temperamental proclivities "are relatively enduring and contribute to the child's behavioral and affective patterns across a variety of situations. They are not a product of cognitive experience and learning, although their expression may be modified by cognitive factors" (p.328). Temperament thus has a biological basis and shows some stability throughout life but its expression is impacted by the experiences of the individual. The particular temperamental profile that in unfavorable circumstances may result in behavioral difficulties is described somewhat differently by different theorists and researchers but is characterized by a high arousal threshold, low fearfulness and high activity levels (Kochanska, 1993; Young, Fox & Zahn-Waxler, 1999; Gilliom & Shaw, 2004). These children seek stimulation, are uninhibited, curious, not prone to anxiety and may be more challenging to manage than their more equable peers. However, their curiosity and willingness to try new experiences are strengths that can be capitalized upon in helping them to develop skills in self regulation, social interaction and consideration for others.

Parental discipline techniques are frequently implicated in the development of empathy and overall child adjustment including behavioral problems. These measures are usually obtained from mothers as the primary caretakers. One contrast is between an authoritative style and an authoritarian style. The former refers to a discipline approach that emphasizes reasoning and consistency and deemphasizes power assertion and negativity. The latter approach is more power assertive, punishment oriented and negative (Kochanska, 1991; Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000;

Gilliom & Shaw, 2004). Other approaches to parenting have been categorized as indulgent or permissive and indifferent. The permissive approach is characterized by warmth but minimal discipline and few demands. Indifferent parents are not demanding but they are also not responsive to their children even to the point of being neglectful (Baumrind, 1978; Smetana, 1995; www.cwu.edu/~steins/psy552parentingstyle, 2009). Social learning theory postulates that children may learn dysfunctional behavioral responses from parents especially when harsh and inconsistent discipline is used. Depending on the temperament of the child the results may be different, for example, a fearful child may become anxious and more fearful while a fearless child may become defiant and act out. In terms of empathy development, authoritative parenting can be expected to lead to a responsible child with concern for others based on parental expectations transmitted with warmth. Authoritarian parenting may stunt the growth of empathy due to punitive discipline practices that are not coupled with acceptance and understanding. Permissive parents may promote the development of empathy in their children with their responsiveness and behavioral modeling but given the sense of freedom and lack of responsibility that also may result it is possible that these children may have difficulty acting empathically when necessary. For the children of indifferent parents who are neither warm nor demanding it would seem that empathy development would be compromised as well. Lack of responsiveness by parents could teach these children that needs are not met nor is nurturance available. Temperament could impact how they react: with anger if predisposed to high activity and impulsivity or anxiety and withdrawal if fearful (Zahn-Waxler, Radke-Yarrrow & Chapman, 1992; Robinson, Zahn-Waxler &Emde, 1994, Young, Fox & Zahn-Waxler, 1999).

While parental discipline style is not equivalent to parent-child attachment, how a parent and child respond to each other will be affected by the quality of the attachment. Empathy for the child by the parent is a component of attachment allowing the child to receive physical and emotional nurturance and positive regard. Walker and Cheng (2007) found that maternal empathy combined with either stress or self-confidence predicted level of behavior problems as measured by the CBCL for children under four. Children experiencing the most problems had mothers with low empathy and high stress or low empathy and high self-confidence. Mothers with low empathy and high stress presumably did not provide sufficient warmth and nurturance to their children. The difficulties experienced by children whose mothers had low empathy and high self-confidence support "the idea that confidence in the maternal role needs to be tempered by an emotional and cognitive openness to the child's experience" (Walker & Cheng, 2007, p. 102). Children of mothers with low empathy in combination with each of the other two factors experienced higher levels of internalizing and externalizing behaviors. In either situation lack of empathy for the child had an impact on subsequent child behavioral outcomes. Lack of maternal empathy may affect the strength and quality of the mother-child bond in a negative manner. This in turn could lead to a less caring child who does not expect much from others based on his or her experience with the primary caretaker and does not respond empathetically to another's distress. The failure of the proximal processes between mother and child to enhance child developmental outcomes and competencies probably makes the relationship less rewarding for both and continues a cycle focused on reducing dysfunction rather than promoting mastery. Empathy

development would be a casualty in this situation along with other competencies (Bronfenbrenner & Morris, 1998).

In regards to trauma, specifically physical abuse, Miller and Eisenberg (1988) found in a review of the extant literature on empathy and aggressive behavior that abusive parents were more likely to use authoritarian discipline techniques and to "express relatively higher levels of negative affect after children's social transgressions" (p.341). These parents showed less empathy towards their children and the children in turn exhibited less empathy. These findings were based on a meta-analysis of the extant literature on empathy and aggression so the finding that abused children exhibited less empathy is a synthesis from a variety of sources. Children who were abused also showed higher levels of behavioral problems. If parents already behaving in an authoritarian manner abuse their children in some way and overreact to children's misbehavior they will be modeling inappropriate responses as well as triggering fear and possibly post traumatic stress reactions in their children. The children may then act out more, withdraw or some combination of both. Empathic responses are also not modeled for these children and they may draw negative attention from others for their behaviors. This combination of circumstances seems likely to impact the development of empathy such that concern for others is impeded (Miller & Eisenberg, 1988).

Thus temperament, parental discipline techniques, attachment and experience interact to enhance or impede child outcomes. In terms of the child with a temperamental propensity for a high arousal threshold and low fearfulness the development of empathy may be hindered by harsh parental discipline including physical abuse. In addition a trajectory of increased problem behaviors including aggression may be set in motion.

Gilliom and Shaw (2004) conducted research on boys from age 2-to-6 that indicated externalizing behaviors remained stable over time for boys with this temperamental profile whose mothers engaged in high negative maternal control. They started with high levels and maintained them when the more normal course over this age span is for these behaviors to become more regulated and decrease. The findings were particularly significant for boys with low fearfulness whether or not they exhibited high levels of negative emotionality.

Hastings, Zahn-Waxler, Robinson, Usher & Bridges (2000) also found that boys and girls with behavioral issues continued to have heightened problems when parents utilized authoritarian behavioral styles. They examined the concomitant development of child empathy and found that a more nurturing, authoritative approach predicted an increase in empathy over time (from age-4-to-age-10) even in children with externalizing behavior problems. The empathy seemed to exert a protective effect in that the level of externalizing behavior for children whose empathic concern for others increased over time showed less stability and decreased. Children whose empathy did not increase demonstrated continued elevated levels of externalizing behaviors. These researchers found gender differences in that girls showed more concern for others as compared to boys. For a high risk subset of the boys in the sample they "detected patterns of blended positive and negative affective responses to distress in others in boys with behavior problems. These patterns may be indicative of particular forms of emotional dysregulation or social cognitive biases that contribute to negative trajectories" (p.544). Thus there may be an enhanced risk for boys with externalizing behaviors where empathy is not sufficiently developed.

Empathy is defined as "an emotional response characterized by feelings of concern for another and a desire to alleviate that person's distress" (Young, Fox & Zahn-Waxler, 1999, p. 1189). Miller and Eisenberg (1988) add that "this emotion may be either identical or similar to the state of the other and involves at least a minimal degree of self-other differentiation" (p. 325). Infants have been shown to reflexively respond to the cries of other babies but active concern for others seems to emerge in the second and third years as children develop cognitively and emotionally, recognizing themselves as distinct individuals in relationship to others. Some research has found differences in empathic response in children as young as two. At 2-years-old children with diverse temperamental profiles responded differently to simulations of distress by their mothers and a female researcher. The children showed more empathy for their mothers than for the researcher but those with temperaments characterized by low motor arousal and low affect showed less empathy for the researcher to a statistically significant degree (Young, Fox & Zahn-Waxler, 1999). Children assessed as low, moderate or high risk for behavioral problems participated in simulations similar to those used with the 2-year-olds in the previously cited study (Young, Fox & Zahn-Waxler, 1999) at 4-to5-years old and again at 6-to-7-years-old (Hastings, Zahn-Waxler, Usher, Robinson & Bridges, 2000). There were no statistically significant between group differences at 4-to5-years-old but by ages 6-to-7 the children considered high risk for behavioral problems had significantly less concern for others. A gender difference across age, time and risk existed in that girls, even those with behavioral issues tended to show more empathy than boys. Both higher levels of empathy in children and less punitive parenting practices seemed to exert protective effects on the stability of behavioral issues over time (Hastings, Zahn-Waxler,

Robinson, Usher & Bridges, 2000). Other research has found differences in empathy in a

sample of children whose average age was 6 so there is evidence that empathy can be

differential in this age group and may affect behavior (Findlay, Girardi & Coplan, 2006).

For this study children's empathy was assessed by their mothers using the Child Empathy

Scale (Eisenberg, Fabes, Shepard, Murphy, Jones & Guthrie, 1998). Children were then

presented with vignettes involving pictures and an accompanying story. The vignettes

were designed to illustrate situations requiring some type of empathic response and

children were asked questions about the situation in the vignette. Results indicated that

children higher in empathy also showed greater understanding of social situations leading

the researcher to conclude that "empathy may assist young children in successfully

navigating their social worlds" (Findlay, Girardi & Coplan, 2006. p.355).

One of the hypotheses of this dissertation is that the behavior of hurting animals

will show a relationship with externalizing behaviors particularly aggression even in

children as young as 4-to-6 years old. This behavior among others may indicate a group

of higher risk children whose temperamental profile and life experiences have placed

them on a path of possibly ongoing behavioral problems and difficulties that will impact

their development. Children of this age have the capacity for empathic concern and those

hurting animals may already be in positions where the development of this capacity is

stunted. Factors relating to parental expectations will be considered as well as issues

such as parental depression that may affect the quality of the parent-child relationship.

The potential impact of physical abuse and early foster care will also be considered. If it

can be shown that aggression and some of these other issues have a significant

relationship to the behavior of hurting animals by young children it will indicate that

more than exploratory or curious behavior is involved. These children may be at heightened risk for continuing behavioral issues with animals and in other areas of their lives with implications for their development and functioning.

This section has examined the theory of bioecological processes, social learning theory and attachment theory as frameworks for this proposed study. Social emotional development with particular attention to the importance of empathy for optimal growth has also been addressed. Children may suffer maltreatment and other traumas; they may be living in less advantageous environments; they may have problematic primary attachments and they may have learned deviant behaviors from their primary caregivers that they then generalize to new situations. Many children are exposed to some or all of these situations but most do not hurt animals. The purpose of this study is to see if there are any correlates to this behavior that differentiate the children who do from those who do not and what that implies for ongoing research, treatment and prevention.

Chapter II: Methodology

Constructs

The dependent variable for this study is whether or not a child has hurt animals as operationalized by a single item (#15) on the Child Behavior Checklist: Ages 4-18 (Achenbach, 1991b). This is not a definition of animal abuse as defined, for example, by Ascione (2005, citing Ascione, 1993) where animal abuse is "socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or the death of an animal" (p.28). This level of detail on what may have happened is not provided in the dataset. For purposes of this study the item on the CBCL provides information that the behavior of hurting an animal or animals occurred at a level

84

sufficient for the primary caretaker to give a positive answer to the question. The

informant also identifies if the behavior is either somewhat or sometimes true or very true

or often true. This distinction is of necessity lost by collapsing these two categories into

one in order to create a dichotomous variable. So the behavior of hurting animals for this

study can be defined as a behavior that occurs to the level of concern by the primary

caretaker and is examined for associations with other behaviors or conditions indicated in

the literature. These associations may then provide a framework within which this

behavior seems to occur and suggest implications for intervention.

The dataset is organized by sites representing five regions of the United States.

Three sites, Northwest (NW), South (SO) and Southwest (SW) have the highest numbers

of children reported to have abused animals as measured by the CBCL. These numbers

are 25, 16 and 36 children respectively. These three sites are included in the analysis.

The NW site consists of a risk group with substantiated Child Protective Services

(CPS) reports and a comparison group with unsubstantiated CPS reports. The total

sample consists of 261 children and is 90% urban and 10% rural. The SO site has 221

children divided between high risk at birth and reported to CPS by age 4 and high risk at

birth not reported to CPS by age 4. This sample is 53% urban, 24% suburban and 23%

rural. High risk is defined as reported at birth by state public health tracking due to low

birth weight or premature birth. The SW site is entirely urban and consists of 327

children in early foster care. The comparison group is 112 of these children who have

been returned to their homes by age 4 (NDACAN Dataset Number 87 Users Guide, 2001,

p 15-16).

This analysis examines behavioral, environmental and familial experiences of children who have hurt animals. The CBCL and the Battelle Child Development Screening Inventory (BDI, Newborg, Stock, Wnek, Guidubaldi & Svinicki, 1984) will provide information on child behavior and functioning as reported by their primary caretaker. The relationships between children and their primary caretakers will be examined utilizing the Adult Adolescent Parenting Inventory (AAPI, Bavolek, 1984). Child and family demographics, some primary caretaker characteristics and behaviors and the quality of the home environment also will be investigated.

Day care experiences and service utilization for child mental health treatment will be examined for potential relationships to the behavior of hurting animals. Since it is hypothesized that children who hurt animals will show higher levels of externalizing behaviors it is important to see if this is reflected in utilization of mental health services. Children in this age group frequently attend preschool or day care and if children who hurt animals are either more or less likely to attend this could have implications for prevention and treatment. Examination of satisfaction with neighborhood environment is included as a construct for similar reasons. If less satisfaction with neighborhood and non-utilization of day care correlate with hurting animals this provides information that the behavior may be more likely to occur in the absence of structure (day care) and possibly unsafe, nonsupportive surroundings. These constructs are operationalized by the Neighborhood Satisfaction Index, Day Care Experiences Instrument and the Child Services Utilization Instrument, all in the LONGSCAN Dataset.

Maltreatment status data which include both alleged and substantiated maltreatment collected from the relevant CPS agency is also in the dataset along with

information on out of home placement. Physical abuse and domestic violence have been linked to hurting animals (Baldry, 2005; Duncan, Thomas & C.Miller, 2005) although other researchers have not found this association (K.Miller & Knutson, 1997). The Maltreatment Data Collection Instrument and the Child's Separation from Caregiver Instrument will be used as measures of these constructs.

Testing these hypotheses and exploring the research questions will incorporate the characteristics of the child, bioecological resources and the demands "that invite or discourage reactions from the social environment of a kind that can foster or disrupt the operation of proximal processes" (Bronfenbrenner and Morris, 1998, p. 995). Both the hypotheses and research questions will attempt to demonstrate what child, primary caregiver and environmental conditions and behaviors show significance with hurting animals in order to provide information about the contexts in which this behavior occurs. The construct of cruelty to animals in the CBCL falls under the category of "other problems." It is not included in any of the eight problem scales or the internalizing or externalizing groupings and it is not present in the Youth Self Report (YSR) or Teacher's Report Form (TRF) (Achenbach, 1991a). The item is scored not true (0), sometimes or somewhat true (1) and very true or often true (3) on the CBCL. Item scores for cruelty to animals in the revised manual for the CBCL indicate referred (for mental health services) boys and girls in the 4-5 year-old age range showed a higher incidence of this behavior than non-referred boys and girls, a pattern that persisted until age 18. According to Achenbach (1991b) of referred boys ages 4-5 approximately 28% had been reported as cruel. The incidence for referred girls was 20% while for non-referred boys and girls it was approximately 10% and 5% respectively (Achenbach, 1991b, p.130). ANCOVA

showed that overall scores on this item were higher for referred than for non-referred children. Thus, hurting animals as measured by the CBCL shows an incidence that is higher among referred children in the age group to be examined in the LONGSCAN dataset. Risk in the dataset is focused on child maltreatment rather than referred versus not referred for mental health services. Other researchers have found relationships between various types of child maltreatment and the abuse of animals (Ascione, Thompson & Black, 1997; Ascione, Friedrich, Heath & Hayashi, 2003, for example) such that additional analysis of these factors seems warranted.

Ascione (1999) writes that "the links between animal abuse and interpersonal violence are ripe for research at all ecological levels from the individual to society and culture" (p.57-58). Examining these relationships in the context of early childhood development may shed some light on possible interactions as well as on possibilities for better treatment and interventions.

The data analysis will explore several hypotheses and research questions developed by examination of the extant literature on the topic. Hypotheses will be:

1. Primary caretakers will report that males exhibit the behavior of hurting animals more frequently.

2. Primary caretakers will report that males who hurt animals will show more externalizing problem behaviors than females who hurt animals.

3. Primary caretakers will report that females who hurt animals will show more internalizing problem behaviors than males who hurt animals.

4. Behaviors identified in the literature as correlated with animal cruelty will show statistically significant relationships to the "cruel to animals" variable. These are

attention problems, aggressive behavior and delinquent behavior. These

behaviors can be conceptualized as indicative of callous unemotional traits and

may indicate a lack of empathy.

5.   There will be a correlation between hurting animals and physical abuse.

Research questions to be addressed are:

1.   What demographic variables are related to hurting animals?

2.   Are there relationships between children who have experienced foster care

     placements and the behavior of hurting animals?

3.   Is there any relationship between parenting style as measured by the Adult-

     Adolescent Parenting Inventory subscales and the behavior of hurting animals?

4.   Are there any relationships between parental and child variables such as level of

     maternal depression, maternal alcohol abuse, separation from caretaker or child

     development and the behavior of hurting animals?

5.   Do environmental variables such as quality of neighborhood, day care

     experiences, and condition of the home indicate a relationship with hurting

     animals?

<div align="center">Research and Design Strategies</div>

Study Design

       This study will utilize a secondary dataset, the Longitudinal Studies of Child

Abuse and Neglect (LONGSCAN), Assessments 0-4 produced by the National Data

Archive on Child Abuse and Neglect (NDACAN) located in the Family Development

Center at Cornell University (2001). This is a large scale dataset employing five sites

across the United States. Three sites will be used: the Northwest (NW), South (SO) and

<div align="center">89</div>

Southwest (SW) as they contain the largest numbers exhibiting the behavior of interest, hurting animals by children. As sites are examined separately, the East and Midwest sites were excluded because they only had 10 children each identified as hurting animals.

Each site sample was recruited around specific risk factors although all sites examine child maltreatment. The NW site looks at referral to Child Protective Services (CPS) and whether or not reports were substantiated or unsubstantiated. The SO site focuses on family stress and social support variables in relation to child abuse and neglect while the SW site considers the impact of child placement (LONGSCAN Assessments 0-4, NDACAN Dataset Number 87, Users Guide, p.11) All the sites have substantiated and alleged maltreatment variables. Other variables to be examined include the CBCL scale items, BDI scale items, responses to the AAPI questions, the CESD scale, and the CAGE alcohol screening responses. The CBCL and BDI scales will provide information on child behavior and development while the AAPI, CESD and CAGE will explore possible relationships between primary caretakers' attitudes toward parenting, level of depressive symptoms and risk for alcohol abuse and the dependent variable of hurting animals. The Interviewer Ratings of Home Environment and Neighborhood Satisfaction Index Short Form will provide information on the quality of home end neighborhood environments. Other variables include data on demographics, day care usage, utilization of mental health services and foster care placement. These will be utilized to explore the relationships of child gender, day care, foster care and mental health treatment to hurting animals. Any other statistically significant relationships with demographics will be assessed.

There are several limitations that will apply to this study. First, for the behavior of interest, hurting animals, the numbers of children identified as involved in this behavior are low. Also, although the data are part of a projected longitudinal study this is the first wave so the ability to observe change over time is absent. The data are primarily nominal and ordinal which limits the types of statistical analyses that can be utilized as does the non-parametric nature of the data. The information is not collected through self-report but obtained from primary caretakers who identify their children as hurting animals. The young age of the children raises the question of whether the behavior is related more to child developmental issues such as curiosity, exploration and lack of knowledge as hypothesized by Ascione (2005) than to other factors. The data analysis should partially answer this question. As all of the children in the sites under consideration have some degree of risk in their life experience, the ability to generalize to the larger population is limited. Risks vary according to the site under examination. For the NW site there is a moderate risk of maltreatment to the child as measured by CPS reports of alleged and substantiated child abuse or neglect. The SO site consists of children identified at birth due to low birth weight and premature birth. Approximately one third of these children were subsequently reported to CPS with the remainder of the children not reported. The SW site investigates children who entered early foster care one third of whom have been returned home by age 4. The measure of hurting animals from the CBCL is one question only with no attendant detail as to what specifics may have been involved in the behavior. However, as this is an exploratory analysis seeking to examine the earliest onset of a behavior that is not well understood the measure provides a place to begin viewing it within an ecological context along with other

behaviors. Finally, any relationships that the data analysis may demonstrate would not be causal but only indicate associations greater than chance.

Sampling Strategy

As previously discussed, this is a secondary data analysis. The data are organized in five sites. The three sites with the largest numbers of children identified as having hurt animals will provide the samples along with the other children included in each site. The sites are identified by geographic location within the continental United States; the NW, SO and SW sites will be analyzed. As each site is designed to be examined individually, using the sites with the highest numbers of children exhibiting the behavior of hurting animals seems the best way to obtain information.

Instruments

The dataset utilized numerous instruments with information on how each question was answered as well as total scores. Some, such as the CBCL, are established instruments while others were developed specifically for the LONGSCAN study. Not all instruments were used at all sites. Information on validity and reliability of scales developed by others and used in the dataset is provided. Reliabilities using alpha were established for all scales used in the analyses for this study. Following is a list of the instruments (or portions thereof) utilized in the data analyses:

1. Adult Adolescent Parenting Inventory (Bavolek, 1984). The AAPI examines attitudes toward parenting utilizing four constructs: empathy for the child, age appropriate expectations of the child, how the child's role in the family is viewed and acceptance or rejection of physical punishment. The AAPI was used as a measure of attitudes towards parenting in a separate study with the LONGSCAN

dataset (English & Graham, 2000). It will be used in the current study to explore possible relationships between parental attitudes and whether or not children hurt animals. The LONGSCAN dataset for the 0-to-4 age group has reliability alphas ranging from .60 to.92 for the AAPI (English & Graham, 2000). Each of the four constructs (subscales) shows concurrent validity discriminating between abusive and non-abusive parents in a separate sample utilizing the AAPI (Bavolek, 1984 as cited in English & Graham, 2000). The Appropriate Empathy Subscale has a scoring range of 8 to 40. Examples of items are: "Comforting a crying child spoils them" and "Parents spoil a child by being sensitive." The Appropriate Expectations Subscale has been expanded by LONGSCAN to include six more items. An example of an item from the original subscale is "Children verbally express themselves by one year." The six items added are:

- A well-behaved child loves mother.

- It is OK if a child misses school to help family.

- You can have a child 8-10-years home alone.

- "Problem" talk near children less than 6 is OK.

- A 7-year-old can get his or her own meals.

- A 12-year-old can discipline siblings.

The scoring range for this expanded subscale is 12 to 60. Rejection of Physical Punishment, the third subscale, has a range of scores form 10 to 50. Examples of items include: "Children deserve more discipline" and "You should force a child to respect parent." The final subscale is Appropriate Family Roles. The scoring range is 8 to 40, and sample items are "A good child comforts arguing parents"

and "A child is responsible for parent's happiness." Higher scores indicate more

appropriate parental attitudes. Answers are coded on a 5-point Likert scale from

strongly agree to strongly disagree.

As only the SO site showed statistically significant results for the AAPI and that

for just two of the subscales they are the only ones reported. The alpha for the

Appropriate Expectations Subscale based on standardized items is .833. The

variance is 45.516 and the standard deviation is 6.443. The subscale is composed

of 12 items with alphas if the item is deleted ranging from .807 to .828. The mean

score is 45.84 with a range of 24 to 60. Skewness is -.572, indicating a normal

curve and kurtosis is .759. The alpha based on standardized items for the Empathy

Subscale is .824. The variance is 29.141 and the standard deviation is 5.398. The

subscale contains eight items; alphas if the item is deleted range from .778 to .814.

The mean score is 28.01; the modal score is 32. The range is 16 to 40. The

skewness is .002, and the kurtosis is -.542. The skewness indicates the subscale

has the shape of a normal curve

2. Battelle Child Development Screening Inventory (BDI, Newborg, Stock, Wnek,

Guidubaldi & Svinicki, 1984). The BDI examines age appropriate development in

five areas: motor skills, expressive and receptive language abilities, personal-

social skills, adaptive behavior (dressing self, using phone) and cognitive ability

(can identify shapes, answer simple logic questions). This scale will provide

information on whether or not there are relative delays in these areas correlated

with hurting animals and how substantial these may be. The test – retest

reliabilities ranged from .84 to.99 in a separate sample not including LONGSCAN

data. (Newborg, Stock, Wnek, Guidubaldi, Svinicki, Dickson & Markley, 1988).

The Cronbach's alpha for the Seattle portion of the NW LONGSCAN sample age

0-to-4 is .91 (English & Graham, 2000). Convergent validity of the Seattle

LONGSCAN sample with the Peabody Picture Vocabulary Test was .31 (English

& Graham, 2000). Sample items include: "Child asks for adult help" and "Child

answers simple logic questions". The Personal-Social Scale at the SO site has an

alpha of .907 based on standardized items. Alphas if an item is deleted range from

.813 to .833. Variance is 34.511, and the standard deviation is 5.8746. The

Adaptive Behavior Scale alpha based on standardized items is .829 at this site.

Alphas if an item is removed from the scale range from .747 to .775. The variance

is 20.594, and the standard deviation is 4.5381. Skewness is -1.049, slightly to the

left with kurtosis of 3.179. The Personal-Social Scale has an alpha of .835 on

standardized items at the SW site. Alphas if an item is deleted range from .763 to

.800. The standard deviation is 5.3801, and the variance is 28.945. Skewness is -

.089 indicating a symmetric distribution and kurtosis is -.320. On the Adaptive

Behavior Scale the alpha for standardized items is .784. Alphas if an item is

deleted from the scale range from .712 to .749. The variance is 15.17, and the

standard deviation is 3.8949. Skewness is -1.018, essentially a normal distribution

with kurtosis of 3.591. The Cognitive Scale has an alpha on standardized items of

.791. Alphas if an item is deleted range from .735 to .787. The variance is

16.516, and the standard deviation is 4.064. Skewess is -.376, a normal

distribution, and kurtosis is .440.

3. Child Behavior Checklist: Ages 4-18 (CBCL, Achenbach, 1991). The CBCL item

on whether or not a child has been cruel to animals provides the dependent

variable for this study. This variable is not included on any of the CBCL scales.

The scales for externalizing and internalizing behaviors as well as the scales for

aggressive behavior, attention problems and delinquent behavior will provide the

measures for these constructs in order to test the hypotheses that hurting animals

will show relationships to these behaviors. In terms of reliability, Cronbach's

Alphas ranged from.76 to .92 on the LONGSCAN samples, age 0-to-4 (English &

Graham, 2000). The CBCL demonstrates content validity by discriminating

significantly between "demographically matched referred and nonreferred

children" (Achenbach, 1991b, p. 109). Construct validity is evidenced by

significant associations with similar scales and criterion related validity by

discriminating between referred and nonreferred children with the effects of

demographics controlled (Achenbach, 1991b). Sample statements are: "Child is

stubborn, sullen, irritable", "Child stares blankly" and "Child is self-conscious".

Table 3 shows alphas for standardized items and standard deviations at each site

for the CBCL scales used most frequently in the data analyses. Additional

reliability statistics can be found in the Appendix.

Table 3: CBCL Scale Reliability and Standard Deviations

	South Site	Northwest Site	Southwest Site
Externalizing behavior scale	α: .914 SD: 9.191	α: .888 SD: 8.656	α: .893 SD: 9.392
Internalizing behavior scale	α: .852 SD: 6.203	α: .830 SD: 4.865	α: .814 SD: 5.00
Aggressive behavior scale	α: .901 SD: 7.482	α: .891 SD: 7.1836	α: .892 SD: 7.635
Attention problems scale	α: .757 SD: 3.2994	α: .721 SD: 2.8624	α: .798 SD: 3.582
Delinquent behavior scale	α: .734 SD: 2.1896	α: .526 SD: 2.005	α: .644 SD: 2.357

4. Center for Epidemiological Studies-Depression Scale (CES-D, Radloff, 1977).   The

   CESD is utilized as a measure of depression for primary caretakers to determine if

   this has a correlation with their children hurting animals. Cronbach's alphas for the

   entire LONGSCAN sample for primary caregiver at the age 4 interview ranged from

   .86 to .91 (English & Graham, 2000). Sample items include: "Cannot shake off the

   blues" and "Has trouble concentrating". The Center for Epidemiological Studies

   Depression Scale (CESD, Radloff, 1977) was administered to the mother or other

   primary caretaker at each of the three sites. Higher scores indicate more depressive

   symptoms; the range is 0 to 60. Answers are coded on a Likert scale of 0 to 3. Four

   items are reverse recoded so that all responses are in the same direction. There are 20

   items in the scale. As the CESD is only significant at the SO site only those

   reliability statistics are reported. The alpha on standardized items for this scale is .902

with a standard deviation of 11.884 and variance of 141.223. Alphas if the item is deleted range from .886 to .904.

5. Mother's Health and Alcoholism Screener (CAGE, Ewing & Rouse, 1970; Ewing, 1984). The CAGE will serve as a measure of risk for alcohol abuse by primary caretakers to be examined for any correlation with their children hurting animals. Cronbach's alpha for the entire LONGSCAN sample at the age 4 interviews was .78 (English & Graham, 2000). Sample items from this scale are: "Mother (or primary caretaker) felt guilty about drinking" and "Mother (or primary caretaker) drinks first thing in the AM". Alpha for this scale at the SO site is .740 based on standardized items. The variance is 1.462, and the standard deviation is 1.209. Alphas if an item is deleted range from .638 to .710. The SO site is the only site where this scale showed a relationship with the dependent variable.

Measures developed specifically for the LONGSCAN study also examine factors hypothesized to be related to child animal cruelty. Aside from demographic information, these will include other measures as specified below:

1. Separation from Caregiver Scale. The variables in this scale provide information on number and types of child removal. These variables will be used in examining any relation between mandated foster placement and the behavior of hurting animals, one of the research questions for this study. Chi-square analysis showed criterion validity for separation by maltreatment after the first year of life up to age 4 based on information received by LONGSCAN by July 8, 1997 for the entire sample including all five sites (45% versus 27%, N=339, $p < 0.0002$). No reliability data are available.

2. Day care History Form. The day care variables reflect whether or not a child has been or is currently in day care, length of time in day care and the type of setting, for example preschool, center or home day care. These variables will allow exploration of whether or not there are any statistically significant relationships between these variables and hurting animals. No reliability data are available.

3. Maltreatment Data Forms. These variables record any allegations of child maltreatment by category (for example, physical abuse with injury) and whether or not the allegations were subsequently supported by CPS. The allegations of maltreatment will be used to construct a dichotomous variable of physical abuse or other abuse in order to test the hypothesis that physical abuse will show a correlation with hurting animals.

4. Household Composition and Family Chart. These variables record who the primary caretaker is and who else lives in the household. They will provide demographic information on income and education of primary caretakers.

5. Interviewer Ratings of Home Environment. This scale examines the condition and quality of the home environment especially in regards to what is needed for child stimulation and development. Relationships between this aspect of the home environment and the behavior of hurting animals would provide examples of how different levels of the environment have the capacity to impact outcomes (Bronfenbrenner & Morris, 1998). Cronbach's Alpha for all sites at age 4 except the East was .72 based on information received by LONGSCAN by July 8, 1997. Validity data for the age 4 interviews are not available. Samples from this scale are: "Saw parent and child in a learning act", "Home is well-maintained" and

"Are children's toys available." The child environment is rated by the interviewer based on observation and questions asked of the primary caretaker. The scale consists of 15 questions. As ten are coded on a five-point Likert scale and five are yes or no, the ten items were recoded to match the five with 0 = No and 1 = Yes. Higher scores indicate a better environment. At none of the sites is this scale statistically significant. The SO site binary logistic regression does approach significance, so the reliability statistics are reported. The alpha for this scale at the SO site is .766 on standardized items. One item – caregiver cooperation – is removed for zero variance, as all caregivers are cooperative. The variance is 6.507, and the standard deviation is 2.551. Alphas if an item is removed range from .718 to .762. Kurtosis is -.424, and skewness is -.487 which indicates a normal distribution.

6. Child Services Utilization. Variables related to referral and utilization of mental health treatment are included in the data analysis as well as whether or not the primary caretaker believed the child needed such services. These variables will be used to explore any relationships between use of mental health services and hurting animals.

7. Neighborhood Satisfaction Index Short Form. This scale examines satisfaction with and the quality of the neighborhood as reported by the primary caretaker. As with the scale for the home environment, relationships between this scale and the dependent variable may be indicative of how environment can impact behavior. Cronbach's Alpha for the entire sample at age 4 is .87. In terms of validity, chi square analysis showed statistically significant associations with interviewers' ratings on several items from the Home Environment Scale from the age 4 interview, based

on information received by LONGSCAN by July 8, 1997. Samples from this scale include: "People watch each others children" and "There is much drug abuse". The alpha is .873 for standardized items at the NW site. This is the only site where this scale demonstrates statistical significance with the dependent variable. Alphas if an item is deleted range from .845 to .867. The variance is 46.668, and the standard deviation is 6.831. The skewness is .588, an asymmetrical distribution and kurtosis is -.585.

The preceding list of scales and instruments seem to best provide the information that relates to behaviors identified in the literature as related to the harming of animals by children. This would include the maltreatment data, the CBCL scales for externalizing and internalizing behavior, demographics, attitudes towards parenting and primary caretaker risk for depression and alcohol abuse. Other variables on foster care and day care experiences provide data for exploring the potential relevance of these factors to the behavior of hurting animals by young children. Not all may turn out to be relevant but will be examined for statistically significant associations.

Models of Analysis

Much of the data in the LONGSCAN dataset are categorized at the nominal or ordinal level which limits the types of analyses that can be performed. In addition, the dependent variable, cruel to animals, will be collapsed from a three-point to a dichotomous variable, cruel to animals or not cruel to animals. This is due to the low numbers in the very true or often true category on the original three-point CBCL item. Combining it with the somewhat or sometimes true category increases the number of respondents available in relation to the larger numbers in the not true category.

Other variables are recoded to facilitate analysis. For example, the maltreatment data in the LONGSCAN Dataset contain multiple specific categories for type of abuse or neglect and for perpetrators. Given the low incidence in each category, they are recoded into two categories: physical abuse and other abuse. The only scales recoded are the transformed CBCL scales (T scores) for aggressive behavior and attention problems in order to examine the statistical significance of clinical versus non-clinical cutoff points to hurting animals. However, findings for these scales with the dependent variable are also presented with the scales in their original form as continuous variables so reliability and validity are not affected.

Given that the dependent variable, cruel to animals, is nominal (yes or no) the block method of binary logistic regression will be used to examine the relationship of the dependent variable to the selected independent variables. Independent variables will be recoded as needed to meet the assumptions of this test. Dummy variables will be created as needed. The assumptions are that the dependent variable must be dichotomous and independent variables can be nominal, ordinal, interval or ratio. Dependent and independent variables must be independent of one another. Independent variables that show statistical significance with the dependent variable as well as other variables of interest will be entered into the regression simultaneously using the block method in order to build models accounting for the greatest amount of variance. These models will maintain significance for the model using the chi square statistic and at least one independent variable will remain statistically significant. Statistical significance will be set at $p. \leq .05$. Figure 1 illustrates a proposed model for hurting animals based on the theoretical frameworks and variables to be utilized in the data analyses. Reliability

analyses using alpha are done for all scales utilized. Muticollinearity is tested for and correlations of the independent variables used at each site are provided.
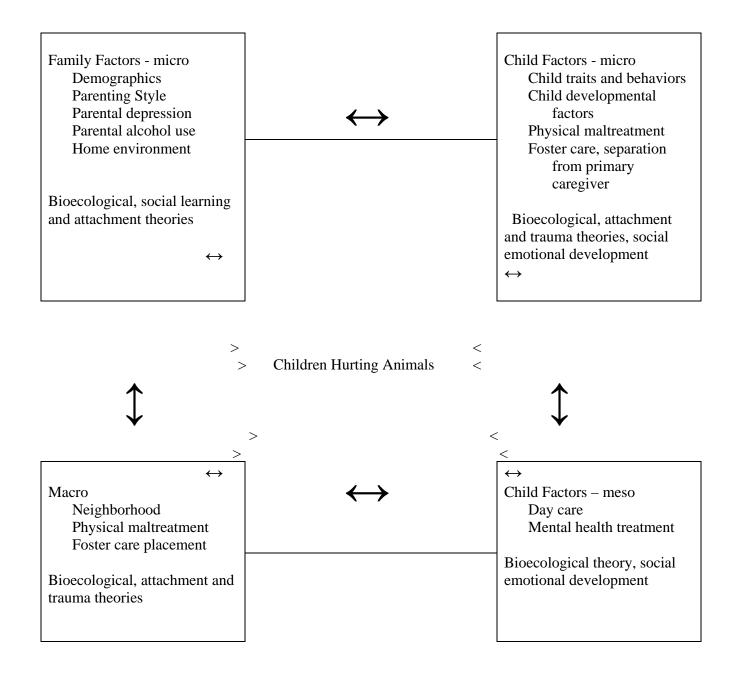
Human Subjects Review

An exemption from the Institutional Review Board (IRB) has been received for this study. Subjects in the dataset are identified only by site and an assigned number. According to the LONGSCAN Users Guide, any "human subjects concerns raised by any given measure would be weighed by the LONGSCAN Measurement Committee with input from the Human Subjects Committee, which is made up of representatives from the Coordinating Center and each site" (LONGSCAN, Assessments 0-4, NDACAN Dataset Number 87, Users Guide, 2001, p. 17).

As with any research involving human subjects, absence of harm and protection of confidentiality or anonymity are paramount. The care taken by NDACAN and the subsequent exemption by the Boston College IRB for this study indicate that adequate care has been taken to protect the individuals involved in this research study.

FIGURE 1:

PROPOSED ANIMAL ABUSE MODEL

| Family Factors - micro
    Demographics
    Parenting Style
    Parental depression
    Parental alcohol use
    Home environment

Bioecological, social learning and attachment theories

                    ↔ | ↔ | Child Factors - micro
    Child traits and behaviors
    Child developmental
        factors
    Physical maltreatment
    Foster care, separation
        from primary
        caregiver

 Bioecological, attachment and trauma theories, social emotional development
↔ |

> >   Children Hurting Animals   < <

‖   ‖

> >   < <

| ↔
Macro
    Neighborhood
    Physical maltreatment
    Foster care placement

Bioecological, attachment and trauma theories | ↔ | ↔
Child Factors – meso
    Day care
    Mental health treatment

Bioecological theory, social emotional development |

Chapter III: Results

Study Design

This study utilizes a secondary dataset, the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), Assessments 0-4 (for ages less than 1 to approximately 4-years-old) produced by the National Data Archive on Child Abuse and Neglect (NDACAN) located in the Family Development Center at Cornell University (2001). This is a large scale dataset employing five sites across the United States. Three sites are used: the Northwest (NW), South (SO) and Southwest (SW) as they contain the largest numbers exhibiting the behavior of interest, hurting animals by children. The data are being compiled to add to the knowledge base on child maltreatment by conducting a longitudinal study of young children identified as at risk for some type of child abuse. Specific goals include a better understanding of the factors that increase risk, what contributes to positive outcomes, how the types of maltreatment interact with child and environmental variables and the strengths and weaknesses of the various societal responses (LONGSCAN Assessments 0-4, NDACAN Dataset Number 87, Users Guide, 2001, pp 10-11). The LONGSCAN Coordinating Center provides ongoing training, technical assistance and oversight of the data collection at five centers across the United States as this is a multi-year initiative.

Each site has its own research objectives and the variables may differ from site to site. The NW site examines referral to Child Protective Services (CPS) and whether or not reports were substantiated or unsubstantiated. The SO site focuses on family stress and social support variables in relation to child abuse and neglect while the SW site considers the impact of child placement (LONGSCAN Assessments 0-4, NDACAN

Dataset Number 87, Users Guide, p.11) All the sites have information on substantiated and alleged maltreatment variables.

This exploratory data analysis looks for significant differences between children who hurt animals and those who do not in terms of traits or experiences identified in the literature. These traits include aggressive behaviors, attention problems, and social problems; depressive symptoms and anxiety as well as developmental issues such as delays in social, cognitive and motor functioning. Participation in day care, mental health treatment for the child and foster care placement are considered. Experience of some form of physical abuse, parental attitudes, characteristics and behaviors, family demographic factors and home and neighborhood environment are also included in the analyses.

There are several limitations that apply to this study. First, for the behavior of interest, hurting animals, the numbers involved are low. Also, the time frame is cross-sectional in that I am using only the first wave of a projected longer term study. Thus change over time cannot be assessed. The data are primarily nominal and ordinal which limit the types of statistical analyses that can be utilized as does the non-parametric nature of the data. The young age of the children raises the question of whether the behavior is related more to child development issues as hypothesized by Ascione (2005) than to other factors such as temperament, parenting style, other parental issues, foster care or physical abuse. As all of the children in the sites under consideration have some degree of risk in their life experience, the ability to generalize to the larger population is limited. Risks vary according to the site under examination. For the NW site there is a moderate risk to the child as measured by CPS reports both substantiated and

unsubstantiated. The SO site consists of children identified as high risk at birth due, in part, to low birth weight. Approximately one third of these children were subsequently reported to CPS. The SW site investigates children who entered early foster care, one third of whom have been returned home by age four. The measure of hurting animals from the CBCL is one question only with no attendant detail as to what specifics may have been involved in the behavior. However, as this is an exploratory analysis seeking to examine the earliest onset of a behavior that is not well understood the measure provides a place to begin viewing it within an ecological context along with other behaviors. Finally, any relationships that the data analysis demonstrates would not be causal but only indicate associations greater than chance.

Sampling Strategy

As previously discussed, this is a secondary data analysis. The data are organized in five sites. The three sites with the largest numbers of children identified as having hurt animals provide the samples along with the other children included in each site. The sites are identified by geographic location within the continental United States; only the NW, SO and SW sites are analyzed. According to the LONGSCAN Users Guide

> The studies' samples vary systematically in level of risk for,
>
> or actual, maltreatment histories. This strategy permits the examination
>
> of the risk and protective factors shared by both maltreated children and children
>
> at risk of being maltreated. Collectively, the samples also permit the examination
>
> of the impact of a range of interventions, including the degree of social service
>
> involvement. (LONGSCAN, Assessments 0-4, NDACAN Dataset Number 87
>
> Users Guide, p. 10)

Descriptions of the site samples are presented followed by the incidence of hurting animals at each site. This is followed by the results for each of the five hypotheses by site. Findings for the research questions are discussed next, also by site. Site models that incorporate multiple variables shown to be statistically significant with the behavior of hurting animals are explored to demonstrate how the independent variables correlate simultaneously with the dependent variable. The final section of this chapter examines CBCL transformed scores (T scores) for aggressive behavior and attention problems as dichotomous variables. Scores are either above or below the borderline clinical cutoff point, that is, the score at which referral for mental health services would be considered.

Description of the Samples

South Site

The SO site consists of 221 children born between 1986 and 1987. They were recruited from a preexisting sample identified as high risk at birth through a state public health initiative. At the time of recruitment, 74 had been reported to CPS with 147 not reported. The sample is 53% urban, 24% suburban and 23% rural (LONGSCAN Assessments 0-4, NDACAN Dataset Number 87, Users Guide, 2001, pp.14-16). Additional demographic information is provided in Table 4 and Table 5.

The children in the SO site range in age from 4-to-6-years-old at the 4 year assessment with 7.2 % age 4, 60.2% age 5 and 32.6 % age 6. The median and modal age is 5 years with skewness of -.087 and kurtosis of -.451. The gender skewness is .194 with kurtosis of -1.981. Neither age nor gender are severely skewed and approach a

normal curve. Skewness for race is 2.934, strongly skewed to the right with kurtosis of

17.65.

Family income ranges from less than $5000 per year to greater than $50,000 per

year. The median income is between $10,001 and $15,000 with a modal income of less

than $5000 per year. These figures are based on data collected between July, 1991 and

April, 1993.

The primary caretaker for 195 of the 221 children in this site is the biological

mother. Fifteen of the children live with a grandmother with the remainder divided

between foster mother, adoptive mother, stepmother, father and other relative. Skewness

is 2.708 with kurtosis of 5.906. The caretaker variable is strongly skewed to the right and

is asymmetric.

With regard to child maltreatment and high risk birth factors this sample

contained 147 children considered high risk at birth and not reported to CPS. Sixty-eight

children had high risk births and CPS reports had been made on their behalf while six

who had not had a high risk birth also had had CPS reports prior to entry into the study.

Twelve families had additional CPS reports on behalf of study children at the age 4

interview for a total of 50 reports as some families had multiple allegations. Twenty-one

of these reports (42%) were substantiated. Additional demographic information is

provided in Table 4 and Table 5.

Northwest Site

The NW site's 261 participants were selected from a larger pool of children

considered at moderate risk for maltreatment after a CPS report. Of the 261 children, 149

had substantiated reports and 112 did not. These children were born between 1988 and

1994 and represent a primarily urban population (90%) with 10% considered rural (LONGSCAN Assessments 0-4, NDACAN Dataset Number 87, Users Guide, 2001, pp.16). Additional demographic information is provided in Table 3 and Table 4.

The age range is from 1-to-4-years with a single 1-year-old recorded, 81 at 3-years-old and 168 at 4-years-old. The mean age is 3.66 years with skewness of -1.187 and kurtosis of 1.525. Gender has a skewness of -.023 and kurtosis of -2.015. The skewness for race is.968 and kurtosis is -.817. Gender and race approximate a normal curve while age is slightly skewed to the left but still approaching a normal curve.

The income range for the families is from $5000 per year or less to greater than $50,000. The median income of the group is between $10,001 and $15,000 per year while the mode is between $5001 and $10,000 per year. The income information for the age 4 assessment was collected between July, 1992 and July, 1996.

Unlike the SO site, the NW site collected data at approximately one year intervals so primary caretaker data were collected roughly when children were one year old with only changes recorded over time. At Time 1, 196 children were with their biological mother, 16 with a foster mother, 14 with a grandmother, 10 with their father and 11 with another relative. Two were recorded as unknown with 12 missing. Over the course of Times 2, 3 and 4, ten children returned to their biological mother, one went to a foster mother and one to another relative. Marital status information is based on the Time 4 data collection point.

As previously mentioned, at recruitment 112 families had an unsubstantiated CPS report and 149 had a substantiated report. Over the course of subsequent data collection points 151 families had additional allegations filed with a total of 274 reports

as some families experienced multiple filings. Subsequently 124 of these reports (45%) were substantiated.

Southwest Site

The SW site children had all experienced some form of substantiated maltreatment and had all been in foster care or placement with a relative. They were entered into the study at approximately age 4 at which point 112 had returned home. The birth years of these children are from 1989 to 1991 with the sample an entirely urban population (LONGSCAN Assessments 0-4, NDACAN Dataset Number 87, Users Guide, 2001, pp.14-16). Additional demographic information is provided in Table 4 and Table 5.

The sample of 327 children contains 170 females and 148 males with 9 missing information on gender. Skewness is .139 and kurtosis is -1.993. The age range is 4 to 5 years old with a mean age of 4.16 years, skewness of 1.865 and kurtosis of 1.487. Fifty-one of the children are age 5 and 268 are age 4 with nine missing data on age.

The racial makeup of the sample is 119 Black (36.4%), 90 White (27.5%), 52 Hispanic (15.9%), 52 Mixed Race (15.9%), 3 Asian (0.9%) and one each Native American and Other (0.3%).

The age range is 4 to 5 years old with a mean age of 4.16 years, skewness of 1.865 and kurtosis of 1.487. Gender skewness is .139 and kurtosis is -1.993 while skewness for race is 1.184 and kurtosis is .114. While gender has a normal distribution, race and age are slightly skewed to the right.

Family income ranges from $5000 or less per year to $50,000 or more per year. Median income is between $20,001 and $25,000 per year. The modal income is $10,001 to $15,000 per year. These data reflect the income of the family with which the child resided at the age 4 interview so includes foster and adoptive family incomes to a greater degree than the other two sites. Income data were collected between July, 1992 and February, 1996. For this site 206 families had additional CPS filings for a total of 667 reports as some families had multiple allegations filed. Of the 667 reports 313 (47%) were substantiated. As compared to the other two sites, this site appears to contain the children at highest risk due both to their early placement outside their homes and the number of subsequent CPS reports.

Incidence of Animal Abuse by Children

The dependent variable, cruel to animals, has three categories on the CBCL: 0 = not true as far as you know, 1 = somewhat or sometimes true, 2 = very true or often true. This variable is collapsed into two categories, 0 = does not hurt animals and 1 = does hurt animals. This was done to create a binary variable to use in logistic regression and because category 2 had a low rate of occurrence. The dependent variable in all logistic regressions is the dichotomous recoded variable, hurting animals. Alpha is set at .05 for all analyses. As this is an exploratory data analysis the block method of logistic regression is used throughout. This allows all independent variables of interest to be entered simultaneously for examination of statistical significance with the dependent variable. Stepwise logistic regression is not recommended as it is "notorious for capitalizing on random errors and for which larger samples are required" (Peng, So, Stage & St. John, 2002, p.284).

Multicollinearity of all independent variables used in the logistic regressions has been tested utilizing linear regression as the tolerance and variance inflation factor statistics are not available in logistic regression. No multicollinearity was found. Tolerance values at the SO site range from .536 to 1.00, at the NW site from .988 to 1.00 and at the SW site from .594 to .999. Variance inflation factors range from 1.00 to 1.867 at the SO site, 1.00 to 1.012 at the NW site and 1.001 to 1.685 at the SW site. Correlations for the independent variables are in Tables 6 through 12.

At the SO site 16 children or 7.2% are reported by their primary caretakers as having hurt animals. The standard deviation is .260 and the variance is .067. Skewness is 3.323 and kurtosis is 9.123. For the NW site 25 children or 10.8% are reported as hurting animals. The standard deviation is .311 and variance is .097. Kurtosis is 4.523 and skewness is 2.546. At the SW site 36 children or 11.4% have exhibited the behavior of hurting animals. The standard deviation is .318 and the variance is .101. Skewness is 2.448 and kurtosis is 4.016. The number of children who hurt animals at each site is small relative to the total number of children at a given site; none approaches a normal curve and all are severely skewed to the right.

Table 4
Child Demographics*

	South Site	Northwest Site	Southwest Site
Number of Males**	99 44.8%	132 50.5%	148 45.3%
Number of Females**	120 54.2%	129 49.4%	170 51.9%
Mean Age	5.25 years	3.66 years	4.16 years
Black**	137 61.9%	53 20.3%	119 36.4%
White**	81 36.6%	147 47.5%	90 27.5%
Hispanic**	0 0%	5 1.9%	52 15.9%
Asian, Native American, Mixed Race, Other**	3 1.3%	68 26.1%	57 17.1%
Premature Birth	76 34%	42 16%	22 7.0%

*LONGSCAN, Assessments 0-4, NDACAN Dataset Number 87 Users Guide.
**Note: Due to missing values, percentages may not equal 100%.

Table 5
Primary Caretaker Demographics*

	South Site	Northwest Site	Southwest Site
Mother**	195	196	111
	88.2%	75.1%	33.9%
Father**	4	10	10
	1.8%	3.8%	3.1%
Grandmother**	15	14	33
	6.8%	5.4%	10.1%
Foster Mother**	2	16	88
	.9%	6.1%	26.9
Adoptive Mother**	1	0	48
	.5%	0%	14.7%
Other Relative/Other	4	11	37
than Relative**	1.8%	4.9%	11.3%
Mean Income	$16,645.00	$15,000-$20,000.00	$25,000.00
Less than High	87	50	81
School**	39.3%	19.2%	24.8%
High School or	93	118	108
Equivalent**	42,1%	45.2%	33.0%
Some College**	7	14	22
	3.2%	5.4%	6.7%
Bachelor's Degree or	3	8	15
Above**	1.4%	3.1%	4.6%
Less than or equal to	8	13	1
19 years of age**	3.6%	5%	.3%
20-29 years of age**	145	125	48
	65.6%	47.9%	14.8%
30-49 years of age**	60	115	205
	27.1%	44.1%	62.6%
Over 50 years of	8	8	73
age**	3.6%	3.1%	22.3%
Single**	99	95	60
	44.8%	36.4%	18.3%
Married**	84	74	161
	38%	26.4%	49.2%
Divorced, Separated,	38	81	97
Widowed**	17.2%	31.1%	29.7%
AFDC**	106	156	150
	48%	59.8%	45.9%
Medicaid**	153	178	202
	69.2%	68.2%	61.8%

*LONGSCAN, Assessments 0-4, NDACAN Dataset Number 87 Users Guide.
**Note: Due to missing values, percentages may not equal 100%.

TABLE 6
Pearson Correlations for the South Site

	Parent empathy	Parent expectations	Aggression	Attention problems	Delinquency	Social problems
Parent empathy	---	.648**	-.178**	-.169*	-.110	-.221**
Parent expectations	.648**	---	-.093	-.109	-.036	-.142*
Aggression	-.178**	-.093	---	.681**	.714**	.642**
Attention problems	-.169*	-.109	.681**	---	.546**	.697**
Delinquency	-.110	-.036	.714**	.546**	---	.492**
Social problems	-.221**	-.142*	.642**	.697**	.492**	---
BDI personal-social	.073	.080	-.147*	-.312**	-.045	-.233**
BDI adaptive	-.023	.033	-.124	-.304**	-.080	-.231**
CESD	-.212**	-.115	.370**	.332**	.222**	.327**
Child environment	.220**	.222**	-.160*	-.100	-.190**	-.168*
Physical abuse or neglect	.174	.375	.515	.253	.436	.309
Primary caretaker	.003	-.007	-.051	-.060	-.165*	-.058
Internalizing behavior	-.198**	-.084	.631**	.519**	.537**	.571**
High school vs. none	.223**	.160*	-.040	.020	-.022	-.068
Alcohol	-.196*	-.171	.183	.226*	.205*	.314**
Externalizing behavior	-.172*	-.084	.986**	.686**	.822**	.641**
M. felt c. needed mental health help	.134*	.113	.261**	.365**	.220**	.230**
C. ever in child care	.202*	.173	.007	.161	.124	.096
Total family income	.268**	.241**	-.148*	-.108	-.128	-.097

N= 221
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

TABLE 7
Pearson Correlations for the South Site

	BDI personal-social	BDI adaptive	CESD	Child environment	Physical abuse or neglect	Primary caretaker
Parent empathy	.073	-.023	-.212**	.220**	.174	.003
Parent expectations	.080	.033	-.115	.222**	.375	-.007
Aggression	-.147*	-.124	.370**	-.160*	.515	-.051
Attention problems	-.312*	-.304	.332**	-.100	.253	-.060
Delinquency	-.045	-.080	.222**	-.190**	.436	-.165
Social problems	-.223**	-.231**	.327**	-.168*	.309	-.058
BDI personal-social	---	.709**	-.038	.201**	-.147	.026
BDI adaptive	.709**	---	.018	.142*	.319	.003
CESD	-.038	.018	---	-.076	.404	.096
Child environment	.201**	.142*	-.076	---	-.116	-.021
Physical abuse or neglect	-.147	.319	.404	-.116	---	-.218
Primary caretaker	.126	.003	.096	-.021	-.218	---
Internalizing behavior	-.074	-.062	.405**	-.128	.964**	.021
High school vs. none	.158*	.111	-.081	.098	-.645	-.007
Alcohol	-.042	-.063	-.131	-.217*	-.250	-.082
Externalizing behavior	-.130	-.120	.354**	-.176**	.519	-.082
M. felt c. needed mental health help	-.136*	-.136*	.299**	.042	.333	-.124
C. ever in child care	.060	.047	.108	.041	.a	-.053
Total family income	.184**	.080	-.180**	.255**	.522	-.183**

N= 221
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

TABLE 8
Pearson Correlations for the South Site

	Internalizing behavior	High school vs. none	Alcohol	Externalizing behavior	M. felt c. needed mental health help	C. ever in child care	Total family income
Parent empathy	-.198**	.223**	-.196*	-.172*	.134*	.202*	.268**
Parent expectations	-.084	.160*	-.171	-.084	.113	.173	.241**
Aggression	.631**	-.040	.183	.986**	.261**	.007	-.148*
Attention problems	.519**	.020	.226*	.686**	.365**	.161	-.108
Delinquency	.537**	-.022	.205*	.822**	.220**	.124	-.128
Social problems	.571**	-.068	.314**	.641**	.230**	.096	-.097
BDI personal-social	-.074	.158*	-.042	-.130	-.136*	.060	.184**
BDI adaptive	-.062	.111	-.063	-.120	-.136*	.047	.080
CESD	.405**	-.081	.131	.354**	.299**	.108	-.180**
Child environment	-.128	.098	-.217*	-.176**	.042	.041	.255**
Physical abuse or neglect	.964**	-.645	-.250	.519	.333	.a	.522
Primary caretaker	.021	-.007	-.082	-.082	-.124	-.053	-.183**
Internalizing behavior	---	-.062	.221*	.643**	.231**	-.016	-.113
High school vs. none	-.062	---	-.170	-.038	.072	.070	.176*
Alcohol	.221*	-.170	---	-.197*	-.062	-.039	-.034
Externalizing behavior	.643**	-.038	-.197*	---	.265**	.036	-.152*
M. felt c. needed mental health help	.231**	.072	-.062	.265**	---	.296**	.123
C. ever in child care	-.016	.047	-.039	.036	.296**	---	.041
Total family income	-.113	.176*	-.034	-.152*	.123	.041	---

N=221
** .Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variable is constant.

TABLE 9
Pearson Correlations for the Northwest Site

	Aggression	Attention problems	Delinquency	Social problems	Siblings in the home	Neighborhood satisfaction scale
Aggression	---	.665**	.686**	.597**	.101	.073
Attention problems	.665**	---	.459**	.573**	.030	-.005
Delinquency	.686**	.459**	---	.444**	.188**	.183**
Social problems	.597**	.573**	.444**	---	.121	.088
Siblings in the home	.101	.030	.188**	.121	---	-.032
Neighborhood satisfaction scale	.073	-.005	.183**	.088	-.032	---
Physical abuse or neglect	.171	.184	.023	.219	.055	.133
Internalizing scale	.600**	.539**	.471**	.426**	.032	.136*
Externalizing scale	.984**	.655**	.805**	.596**	.128	.104
High school vs. none	-.150	-.151	-.071	-.119	-.048	-.131
C. ever in child care	-.067	.143	-.032	-.019	-.073	.066

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

TABLE 10
Pearson Correlations for the Northwest Site

	Physical abuse or neglect	Internalizing scale	Externalizing scale	High school vs. none	C. ever in child care
Aggression	.171	.600**	.984**	-.150	-.067
Attention problems	.184	.539**	.655**	-.151	.143
Delinquency	.023	.471**	.805**	-.071	-.032
Social problems	.219	.426**	.596**	-.119	-.019
Siblings in the home	.055	.032	.128	-.048	-.073
Neighborhood satisfaction scale	.133	.136*	.104	-.131	.066
Physical abuse or neglect	---	.090	.142	.163	.056
Internalizing scale	.090	---	.605**	-.135	-.025
Externalizing scale	.142	.605**	---	-.139	-.063
High school vs. none	.163	-.135	-.139**	---	-.088
C. ever in child care	.056	-.025	-.063	-.088	---

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

TABLE 11
Pearson Correlations for the Southwest Site

	Aggression	Attention problems	Delinquency	Externalizing behavior	Social problems	Physical abuse or neglect	BDI personal social	BDI adaptive
Aggression	---	.633**	.671**	.982**	.604**	.094	-.136*	-.124*
Attention problems	.633**	---	.486**	.637**	.693**	.144*	-.214**	-.267**
Delinquency	.671**	.486**	---	.797**	.518**	.134*	-.073	-.029**
Externalizing behavior	.982**	.637**	.797**	---	.622**	.111	-.129*	-.108
Social problems	.604**	.693**	.518**	.622**	---	.121	-.125*	-.168**
Physical abuse or neglect	.094	.144*	.134*	.111	.121	---	.077	-.199**
BDI personal social	-.136*	-.214**	-.073	-.129*	-.125*	.077	---	.498**
BDI adaptive	-.124*	-.267**	-.029	-.108	-.168**	.199**	.498**	---
BDI cognitive	-.107	-.235**	-.053	-.101	-.163**	.111	.556**	.569**
Primary caretaker	.081	-.097	.095	.090	-.061	.008	.015	.095
Internalizing behavior	.581**	.603**	.527**	.605**	.626**	.203**	-.053	-.013
Race	.056	.033	.052	.059	.052	-.173**	-.111	-.106
High school vs. none	-.008	-.023	.036	.002	.007	.123	.005	.022
Mandated placement	.249*	.063	.296**	.277**	.136	.257*	-.265*	-.070**
M. felt c. needed mental health help	.368**	.453**	.365**	.391**	.388**	.136*	-.046	-.091

N = 317
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

TABLE 12
Pearson Correlations for the Southwest Site

	BDI cognitive	Primary caretaker	Internalizing behavior	Race	High school vs. none	Mandated placement	M. felt c. needed mental health help
Aggression	-.107	.081	.581**	.056	-.008	.249*	-.368**
Attention problems	-.235**	-.097	.603**	.033	-.023	.063	.453**
Delinquency	-.053	.095	.527**	.052	.036	.296**	.365**
Externalizing behavior	-.101	.090	.605**	.059	.002	.277**	.391**
Social problems	-.163**	-.061	.626**	.052	.007	.136	.388**
Physical abuse or neglect	.111	.008	.203**	-.173**	.123	.257*	.136*
BDI personal social	.556**	.015	-.053	-.111	.005	-.265*	-.046
BDI adaptive	.569**	.095	-.013	-.106	.022	-.070	-.091
BDI cognitive	---	-.013	.002	-.267**	.153	-.016	.033
Primary caretaker	-.013	---	.044	-.028	-.091	.399**	-.117
Internalizing behavior	.002	.044	---	-.035	-.057	.090	.378**
Race	-.267**	-.028	-.035	---	-.065	-.093	-.062
High school vs. none	.153*	-.091	-.057	-.065	---	-.032	.120
Mandated placement	-.016	.399**	.090	-.093	-.032	---	-.054
M. felt c. needed mental health help	.033	-.117	.378**	-.062	.120	-.054	---

N = 317
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Hypotheses

Hypothesis 1

The first hypothesis is that primary caretakers will report that males will more frequently exhibit the behavior of hurting animals. Both Baldry (2003) and Dadds, et al. (2004) reported higher rates for boys than girls for this behavior although their samples contained older children as well as some in the age range of the dataset under consideration here.

For the SO site there are 219 responses to this question with 2 missing data. Of 112 females, 8 are coded as having hurt animals while of the 109 males, 8 also hurt animals. Utilizing binary logistic regression, results are χ^2 (1, $\underline{N}$ = 219) =0.16, $\underline{p}$ =. 690. The pseudo r^2 = .002, $\underline{p}$ = .689, odds ratio =1.231.Thus for the SO site, gender is not significant as boys are no more likely then girls to hurt animals.

In the NW site the results the results are similar. There are 232 responses for hurting animals or not with 29 missing data for this question. There are 115 females, 12 of whom hurt animals while of 117 males, 13 hurt animals. The statistics are: χ^2 (1, $\underline{N}$ = 232) = .028, $\underline{p}$= .868. The pseudo r^2 = .000, $\underline{p}$ = 868, odds ratio =1.073.

At the SW site there are 316 responses to the question with 11 having no data. Of the 168 females, 11 are shown as hurting animals while 25 of 148 males have hurt animals. Results indicate: χ^2 (1, $\underline{N}$ = 316) = 8.463, $\underline{p}$ <.01. The pseudo r^2 = .052, $\underline{p}$ < .01, odds ratio = 2.901. Boys at the SW are significantly more likely to have hurt animals than girls.

Thus this hypothesis is only partially supported with two sites showing no significant differences between males and females while one site has males significantly more likely to hurt animals (see Table 13 for results).

TABLE 13
Results for Hypothesis 1 : Males will hurt animals more than females by site

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	0.016		
Pseudo r²	0.002		
Gender		1.231	.520
N= 219			
Northwest Site	**Model Statistic**	**Odds Ratio**	**Standard Error**
Chi Square	.028		
Pseudo r²	.000		
Gender		1.073	.424
N= 232			
Southwest Site	**Model Statistic**	**Odds Ratio**	**Standard Error**
Chi Square	8.463 **		
Pseudo r²	.052		
Gender		2.901**	.381
N= 316			

**p. < .01

Hypothesis 2

The second hypothesis relates to the externalizing problem score on the CBCL which is a combination of the aggressive and delinquent behavior scales. Raw scores are used in all analyses of CBCL problem scores and scales unless otherwise indicated. Achenbach states that "for statistical analysis of the competence and syndrome scales, it is usually preferable to use the raw scores rather than the T scores in order to take account of the full range of variation in these scales"(1991b, p.190). The standardized T scores derived by Achenbach (1991b) are discussed in terms of potential clinical significance on syndrome and subscale scores. Higher scores equate to higher problems in the particular behaviors addressed by the syndrome scale. The externalizing behavior syndrome has a possible range of 0 to 66.

The second hypothesis states that males who hurt animals will show more externalizing problem behaviors as measured by the CBCL externalizing problem score. Two items are removed from the scale at the SO site: truancy and alcohol-drug use as they have zero variance. This makes sense given the young age of the sample and is also reported by Achenbach (1991b). The range of externalizing behavior raw scores at this site is 0 to 55. The mean score is 13.298. The mean score for males is 13.424 and for females, 13.158. Comparing these scores with Achenbach's data, referred for treatment boys ages 4-11 had a mean raw score of 20.9; non-referred boys had a mean score of 9.8. Referred girls ages 4-11 had a mean score of 17.5 while non-referred girls had a mean score of 8.2 (1991b, pp.252-254). Expressed as T scores the range is from 30 to 89 with a mean T score of 55.71. The maximum possible T score on this syndrome scale is 100. Scores between 60 and 63 are considered borderline clinical range while scores above 63

are in the clinical range (Achenbach, 1991, p.56). Using these criteria, 32.6% of the children at the SO site fall into the borderline clinical and clinical ranges for externalizing behavior. In examining the relationship between hurting animals and externalizing behaviors at the SO site, a statistically significant relationship is shown: χ^2 (1, $\underline{N}$ = 221) = 25.358, $\underline{p}$ < .001. The pseudo r^2 = .268, $\underline{p}$ < .001, odds ratio =1.130.

When controlling for gender, externalizing behaviors remain statistically significant but there is no effect for gender. Boys who hurt animals do not show significantly higher levels of externalizing behaviors than girls who hurt animals: χ^2 (1, $\underline{N}$ = 219) = 25.314, $\underline{p}$ < .001. The pseudo r^2 = .268, $\underline{p}$ < .001, odds ratio =1.130 for externalizing behaviors with $\underline{p}$ =.858, odds ratio =1.109 for gender.

At the NW site raw scores range from 0 to 40 while T scores range from 30 to 80 with a mean T score of 56.7716. The mean raw score is 14.2069. The mean raw score for females is 13.556 and for males 14.846. As with the SO site, the scores fall between those of referred and non-referred children as compared to Achenbach (1991b), although the age range he described is much broader than that for any of the three sites. Items for truancy and alcohol-drug use are removed for zero variance. At this site 40.1 % of the children fall into the borderline clinical and clinical ranges for externalizing behavior. Externalizing behaviors at the NW site show a statistically significant relationship with the behavior of hurting animals with χ^2 (1, $\underline{N}$ = 232) = 15.858, $\underline{p}$ < .001. The pseudo r^2 = .133, $\underline{p}$ < .001, odds ratio =1.095. However, when controlling for gender, it is not statistically significant: χ^2 (1, $\underline{N}$ = 232) = 15.869, $\underline{p}$ < .001. The pseudo r^2 = .134, $\underline{p}$ < .001, odds ratio = 1.095 for externalizing behaviors with $\underline{p}$ = .917, odds ratio =.955 for gender. As with the SO site, boys at the NW site who show externalizing behavior

problems are no more likely than girls who exhibit externalizing behavior problems to hurt animals.

At the SW site only the alcohol-drug use item is removed from the scale for zero variance. The range of raw scores is 0 to 48. The mean score is 13.78. The mean score for girls is 12.70 and for boys 15.05. Again, for both genders, the scores fall between the means for non-referred and referred children ages 4-11 as reported by Achenbach (1991b). The T scores range from 30 to 84 with 36.9% of these children falling in the borderline clinical or clinical range. The mean T score is 56.1356. Children who exhibit externalizing behaviors are more likely to hurt animals as at the other two sites: χ^2 (1, $\underline{N}$ = 317) = 48.27, $\underline{p}$ < .001. The pseudo r^2 = .278, $\underline{p}$ < .001, odds ratio =1.133.

When gender is added to the model it is statistically significant along with externalizing behaviors: χ^2 (2, $\underline{N}$ = 317) = 52.705, $\underline{p}$ < .001. The pseudo r^2 = .302, $\underline{p}$ < .001, odds ratio =1.128 for externalizing behaviors with $\underline{p}$ <.05, odds ratio =2.421 for gender.

At the SW site boys who show externalizing behaviors are statistically significantly more likely to hurt animals than girls with externalizing behavioral issues. The second hypothesis then only receives support at the SW site with the SO and NW sites showing externalizing behaviors as statistically significant for both boys and girls who hurt animals but no statistically significant difference between the two. Results for all sites are in Table 14.

TABLE 14
**Results for Hypothesis 2: Males who hurt animals will show more externalizing
behaviors than females who hurt animals**

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	25.314 ***		
Pseudo r²	.268		
Externalizing behavior		1.130 ***	.027
Gender		1.109	.582
N= 219			

Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	15.869***		
Pseudo r²	.134		
Externalizing behavior		1.095 ***	.023
Gender		.995	.444
N= 232			

Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	52.705 ***		
Pseudo r²	.302		
Externalizing behavior		1.128 ***	.020
Gender		2.421 *	.422

N= 317
* p< .05. ** p< .01. *** p<.001.

Hypothesis 3

The third hypothesis is that females who hurt animals will show more internalizing behaviors as measured by the CBCL. This has been reported in the literature albeit for older females than the samples in this dataset. The internalizing behavior syndrome on the CBCL contain the sums of scores on the withdrawn scale, the somatic complaints scale and the anxious and depressed scale, minus the statement about whether or not a child is anxious or depressed. This last statement is included on both the withdrawn and anxious and depressed scales when they are examined individually and is removed so it will appear in the internalizing behavior score only once. Higher scores indicate more difficulty; the possible range is 0 to 62.

At the SO site the range of scores for females is from 0 to 29; for males the range is 0 to 31. The mean score for internalizing behaviors is 7.2398. The mean score for females is 7.725 and for males 6.515. As compared to Achenbach's results (1991b, pp. 252-254), referred boys ages 4 to 11 had a mean raw score of 13.1, while non-referred boys in the age range had a mean score of 5.5. For girls ages 4 to 11 referred individuals had mean scores of 14.6, while non-referred had mean scores of 6.3. In terms of T scores, the range at the SO site is 33 to 80 with a mean T score of 52.294. Using the cutoff point of 60 as the borderline clinical range, 21.3 % of the children at the SO site have scores at 60 or above. Results are: χ^2 (1, $\underline{N}$ = 221) = 17.88, $\underline{p}$ < .001. The pseudo r^2 = .192, $\underline{p}$ < .001, odds ratio = 1.155. Thus, for this group of children, those who show higher levels of internalizing behaviors are more likely to hurt animals.

When controlling for gender, however, while internalizing behaviors remain statistically significant, gender is not significant as follows: χ^2 (2, $\underline{N}$ = 221) = 18.58, $\underline{p}$ <

.001. The pseudo $r^2 = .20$, $\underline{p} < .001$, odds ratio $=1.157$ for internalizing behaviors; $\underline{p} = .49$, odds ratio $= 1.474$ for gender.

The statement "feels dizzy" is dropped, as it has zero variance at the NW site. The scores for females range from 0 to 32, and for males the range is from 0 to 20. The mean score for the group is 5.2328 with a mean score for females of 5.4609 and for males 5.0085. As with the SO site, the internalizing behavior scores at the NW site overall fall more in the range of non-referred, that is non-clinical as compared to the findings of Achenbach (1991b) for ages 4- to-11. Viewed as T scores, the mean score is 48.922 with a range of 33 to 78. At the NW site 13.8 % of T scores fall into the borderline clinical or clinical range.

Logistic regression indicates children who exhibit internalizing behaviors at this site are statistically significantly more likely to hurt animals: $\chi^2 (1, \underline{N} = 232) = 8.70$, $\underline{p} < .01$. The pseudo $r^2 = .074$, $\underline{p} < .01$, odds ratio $= 1.115$. When gender is added to the equation the results are: $\chi^2 (2, \underline{N} = 232) = 8.902$, $\underline{p} < .05$. The pseudo $r^2 = .076$, $\underline{p} < .01$, odds ratio $= 1.117$ for internalizing behavior with $\underline{p} = .653$, odds ratio $=1.218$ for gender. Thus, at the NW site, similarly to the SO site, girls who exhibit internalizing behaviors are not more likely than boys to hurt animals, although such behaviors remain significant for the group as a whole as compared to those who do not hurt animals.

The range of scores for females at the SW site is 0 to 24 while scores for males range from 0 to 27. The mean score is 5.1293. The mean score for females is 5.006. Mean score for males is 5.277. The mean T score is 48.416 with a range of 33 to 77. Of the children at the SW site, 13.9% have internalizing T scores that place them in the borderline clinical to clinical range. The binary logistic regression for internalizing

behaviors yields the following: χ^2 (1, $\underline{N}$ = 317) = 10.614, $\underline{p}$ < .001. The pseudo r^2 = .065,

$\underline{p}$ = .001, odds ratio = 1.107. Children who show internalizing behaviors are more likely

to hurt animals to a statistically significant degree.

When gender is added to the logistic regression, results are as follows: χ^2 (2, $\underline{N}$ =

316) = 19.111, $\underline{p}$ < .001. The pseudo r^2 = .116, $\underline{p}$ < .01, odds ratio = 1.11 for internalizing

behavior; p < .01, odds ratio = 2.988 for gender. Internalizing behaviors remain

statistically significant and gender is statistically significant as well, but it is boys rather

than girls who are more likely to show internalizing behaviors.

Thus, this hypothesis is not supported, in that at the SO and NW sites there is no

gender effect for internalizing behaviors with hurting animals as the dependent variable.

At the SW site boys who show internalizing behaviors are more likely than girls with

these behaviors to hurt animals. Internalizing behaviors are statistically significant with

hurting animals for both boys and girls at all three sites (see Table 15).

TABLE 15
Results for Hypothesis 3: Females who hurt animals will show more internalizing
behaviors than males who hurt animals

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	18.58 ***		
Pseudo r²	.20		
Internalizing Behavior		1.157 ***	.035
Gender		1.474	.562
N= 221			

Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	8.902 *		
Pseudo r²	.076		
Internalizing Behavior		1.117 **	.036
Gender		1.218	.440
N= 232			

Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	19.111 ***		
Pseudo r²	.116		
Internalizing Behavior		1.11 **	.031
Gender		2.988 **	.390
N= 316			

* $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 4

The fourth hypothesis states that the CBCL subscales for attention problems, aggressive behavior and delinquent behavior will show statistically significant relationships to the "cruel to animals" variable such that children who hurt animals will be more likely to exhibit these behaviors. The aggressive behavior and delinquent behavior subscales comprise the externalizing behaviors syndrome of the CBCL which has already been shown to have a significant relationship to the dependent variable at each of the three sites in question. However, each subscale will also be analyzed separately. The T scores for all subscales range from 50 to 100.

Examples of items in the aggressive behavior subscale include "argues a lot," "bullies or is mean to others" and "destroys own things." The delinquent behavior subscale contains items such as "not guilty after misbehaving," "hangs out with trouble makers" and "steals at home." The attention problems subscale has items including "can't concentrate," "daydreams" and "can't sit still."

South Site.   The mean score for aggressive behaviors is 11.181 with a range of 0 to 39 out of a possible 40. The mean score for females is 11.0331. The mean score for males is 11.36. Expressed as T scores, the mean is 58.1584 and the range is 50 to 98. With 67 as the cutoff score for borderline clinical consideration for the subscales, 18.1% of the children at this site fall into this range. Logistic regression yields the following: χ^2 (1, $\underline{N}$ = 221) = 24.894, $\underline{p}$ < .001. The pseudo r^2 = .263, $\underline{p}$ < .001, odds ratio = 1.168. Thus, children who exhibit aggressive behaviors are statistically significantly more likely to have hurt animals.

On the attention problems scale the highest possible score is 22; the range here is 0 to 21. The mean raw score is 4.2172. Boys have a mean score of 4.39 with a mean score for girls of 4.0744. The range for boys is 0 to 21; for girls it is 0 to 13. The mean T score is 56.9321 with scores ranging from 50 to 97. With a borderline clinical cutoff score of 67, 12.2% of these children fall into the borderline clinical or above category. The results are statistically significant: $\chi^2 (1, \underline{N} = 221) = 18.404$, $\underline{p} < .001$. The pseudo r^2 = .197, $\underline{p} < .001$, odds ratio = 1.305.

The items truancy and alcohol use are removed from the delinquency scale due to zero variance. Out of a possible maximum score of 26, the range is 0 to 17. Scores range from 0 to 17 for males and from 0 to 9 for females. The mean raw score is 2.1176. Mean score for males is 2.09. The mean score for females is 2.1405. The mean T score is 56.294 with a range of 50 to 87. Using 67 as a borderline clinical point, 13.1% of these children fall into this range. The results of the logistic regression are: $\chi^2 (1, \underline{N} = 221) = 17.961$, $\underline{p} < .001$. The pseudo $r^2 = .193$, $\underline{p} < .001$, odds ratio = 1.471. Delinquent behavior, similarly to attention problems and aggressive behavior as measured by the CBCL subscales, is statistically significant in relation to the dependent variable of hurting animals at the SO site.

Northwest Site. The mean raw score for the aggressive behavior scale is 11.8707; scores range from 0 to 32 out of a possible 40. The mean score for boys is 12.359 and for girls 11.3739. Ranges are from 0 to 28 and 0 to 32 respectively. The mean T score is 58.8836 with a range of 50 to 88 and a maximum possible score of 100. Nineteen percent of the T scores at the NW site fall into the clinical borderline range or above. The logistic regression is statistically significant: $\chi^2 (1, \underline{N} = 232) = 15.19$, $\underline{p} < .001$. The

pseudo r^2 = .128, p < .001, odds ratio = 1.116. Children at the NW site who exhibit

aggressive behavior are statistically significantly more likely to hurt animals.

The mean raw score for the attention problems subscale is 3.6595 with a range of

0 to 14 out of a possible 22. The mean score for males is 3.9487 with a range of 0 to 12.

For females the mean score is 3.3652 ranging from 0 to 14. Mean T score is 55.6379 with

a range from 50 to 82; maximum T score is 100. At this site 9.5% of attention problems

scores fall into the clinical borderline range or above. The findings for the logistic

regression are: χ^2 (1, N = 232) = 9.648, p < .01. The pseudo r^2 = .082, p < .001, odds ratio

= 1.235. As with aggressive behavior, children at the NW site who show attention

problems are more likely to hurt animals.

Items for truancy and alcohol-drug use are dropped from the delinquent behavior

scale due to zero variance. The mean raw score is 2.3362 with scores ranging from 0 to

11 out of a possible 26. The mean raw score for males is 2.4872, ranging from 0 to 9; for

females it is 2.1826 ranging from 0 to 11. Expressed as T scores, the mean is 57.129 with

a range of 50 to 79 and a maximum possible score of 100. There are 21.6% who fall into

the borderline clinical range or above. The logistic regression is statistically significant:

χ^2 (1, N = 232) = 10.48, p < .01. The pseudo r^2 = .089, p < .01, odds ratio = 1.326. For

the NW site all three subscales show statistically significant results, although the

reliability of the delinquent behavior subscale is weak. This indicates that children who

have higher scores are more likely than those who do not to hurt animals. Higher scores

signify more difficulty in these areas.

Southwest Site The mean raw score for aggressive behavior is 11.59 with a range

of 0 to 37 out of a possible 40. The mean raw score for females is 10.816, ranging from 0

to 37. For males the mean is 12.463. The range is 0 to 36. The mean T score is 58.77 with a range from 50 to 96 out of a possible maximum score of 100. There are 21.5% of children scoring at 67 or above, the borderline clinical cutoff point. The results for the binary logistic regression are as follows: χ^2 (1, $\underline{N}$ = 317) = 48.607, $\underline{p}$ < .001. The pseudo r^2 = .280, $\underline{p}$ < .001, odds ratio = 1.172. Children who show aggressive behavior are more likely to hurt animals.

The mean raw score on the attention problems scale is 4.15 with a range of 0 to 21 of a possible 22. Mean raw score for males is 4.718, ranging from 0 to 21 and for females it is 3.637 with a range of 0 to 15. For T scores, the mean is 56.9117 with a range of 50 to 97 out of a possible 100. The percentage of T scores falling in the borderline clinical range or above is 12.3 at this site. For the binary logistic regression the findings are: χ^2 (1, $\underline{N}$ = 317) = 23.052, $\underline{p}$ < .001. The pseudo r^2 = .138, $\underline{p}$ < .001, odds ratio = 1.231. Children at the SW site who have attention problems are more likely to hurt animals.

On the delinquent behavior subscale, the alcohol-drug use item is removed for zero variance. Delinquent behavior had a mean raw score of 2.19 with range of 0 to 14. The maximum possible score is 26. The raw mean score for boys is 2.53, ranging from 0 to 14. For girls the mean score is 1.887, ranging from 0 to 11. The mean T score is 56.514 with a range of 50 to 82 out of a possible 100. Of the total sample, 16.4 % have scores of 67 or above, in the borderline clinical or clinical range. The binary logistic regression results are: χ^2 (1, $\underline{N}$ = 317) = 27.798, $\underline{p}$ < .001. The pseudo r^2 = .166, $\underline{p}$ < .001, odds ratio = 1.401. Thus, at the SW site, all three CBCL scales show statistically significant results in relation to the dependent variable, hurting animals.

The hypothesis that these three scales would show statistically significant relationships with the dependent variable of hurting animals is supported at all three sites examined. Children who have been reported as hurting animals evidence higher scores and thus presumably higher rates of problem behaviors in the areas of aggression, attention problems and delinquent activities as measured by the CBCL. It must be noted that the alphas for delinquent behavior at two sites – the NW and SW – are low, .526 and .644 respectively. This indicates poor internal consistency for these scales at these sites. It may be that given the young age of the children behaviors such as vandalism and lying are difficult for primary caretakers to judge. Thus, the reliability of the scales for what are classified as delinquent behaviors is questionable and may not accurately reflect what these children are or are not doing in this area.

Results for the logistic regressions for each site are in Tables 16, 17 and 18.

TABLE 16
Results for Hypothesis 4 : Correlation of aggressive behavior with hurting animals

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	24.894 ***		
Pseudo r²	.263		
Aggressive Behavior		1.168 ***	.034
N= 221			
Northwest Site	**Model Statistic**	**Odds Ratio**	**Standard Error**
Chi Square	15.19 ***		
Pseudo r²	.128		
Aggressive Behavior		1.116 ***	.029
N= 232			
Southwest Site	**Model Statistic**	**Odds Ratio**	**Standard Error**
Chi Square	48.607 ***		
Pseudo r²	.280		
Aggressive Behavior		1.172 ***	.026
N= 317			

* p< .05. ** p< .01. *** p<.001.

TABLE 17
Results for Hypothesis 4 : Correlation of attention problems with hurting animals

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	18.404 ***		
Pseudo r²	.197		
Attention Problems		1.305 ***	.065
N= 221			

Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	9.648 **		
Pseudo r²	.082		
Attention Problems		1.235 ***	.068
N= 232			

Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	23.052 ***		
Pseudo r²	.138		
Attention Problems		1.231 ***	.044
N=317			

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 18
Results for Hypothesis 4 : Correlation of delinquent behavior with hurting animals

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	17.961 ***		
Pseudo r²	.193		
Delinquent Behavior		1.471 ***	.101
<u>N</u>= 221			

Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	10.48 **		
Pseudo r²	.089		
Delinquent Behavior		1.326 **	.086
<u>N</u>= 232			

Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	27.798 ***		
Pseudo r²	.166		
Delinquent Behavior		1.401 ***	.066
<u>N</u>= 317			

* p< .05. ** p< .01. *** p<.001.

Hypothesis 5

The fifth and final hypothesis is that there will be a relationship between hurting animals and child maltreatment items such as physical abuse, domestic violence and sexual abuse. Given the complexity of the coding system used by LONGSCAN, the small numbers of children who are identified as having hurt animals and the necessity of using logistic regression analysis, the multiple categories for abuse were collapsed into a dichotomous variable where other abuse is coded as "0" and physical abuse is coded as "1." The categories utilized refer to allegations rather than substantiated instances of abuse, as failure to substantiate by CPS does not necessarily mean that no abuse occurred. Table 19 shows the categories included under physical abuse and other abuse and neglect.

TABLE 19: Categories of Physical Abuse and Other Abuse

Physical Abuse	**Other Abuse and Neglect**
Physical abuse with injury	Refusal of health care
Physical abuse injury status unknown	Delay of health care
Physical abuse no injury	Abandonment
Sexual abuse	Expulsion from home
Other or unknown sexual abuse	Inadequate supervision
Emotional abuse	Other physical neglect
Close confinement	Educational neglect
Verbal or emotional assault	Permitted chronic truancy
Other or unknown abuse	Failure to enroll, other truancy
Other or unspecified maltreatment	Emotional neglect
General or unspecified abuse	Inadequate nurturance, affection
	Permitted drug, alcohol abuse
	Permitted other, maladaptive behavior
	Refusal of psychological care
	Delay in psychological care
	Other emotional neglect
	Other maltreatment
	General or unspecified neglect
	Dependency, protective issues

For the SO site there was a very low frequency of abuse allegations. Six physical abuse allegations and two others are recorded involving eight individuals. Binary logistic regression shows no statistical significance with the behavior of hurting animals: χ^2 (1, $\underline{N}$ = 8) = .622, $\underline{p}$ = .430. The pseudo r^2 = .141, $\underline{p}$ = .999.

For the NW site 43 abuse allegations and 34 other allegations are recorded involving 66 individuals. Again, physical abuse does not show a statistically significant relationship with hurting animals: χ^2 (1, $\underline{N}$ = 66) = .153, $\underline{p}$ = .695. The pseudo r^2 = .005, $\underline{p}$ = .695.

At the SW site 240 allegations were made involving 235 individuals. Of these reports, 132 involved physical abuse and 108 other abuse. As at the other two sites, the binary logistic regression is not statistically significant: χ^2 (1, $\underline{N}$ = 235) = .505, $\underline{p}$ = .478. The pseudo r^2 = .004, $\underline{p}$ = .481. This hypothesis is not supported; children who experienced some form of physical abuse are not more likely to have hurt animals than children who have not experienced some type of physical abuse at the three sites (see Table 20). The SO site has a very low occurrence of physical abuse, but the NW and SW sites have a much greater incidence of maltreatment, including various forms of physical abuse. The risk of experiencing this behavior is spread across all the children at these two sites.

TABLE 20
Results for Hypothesis 5: Correlation of physical abuse or other abuse with hurting animals

South Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	.622		
Pseudo r²	.141		
Physical abuse or other abuse N= 8			28420.721

Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	.153		
Pseudo r²	.005		
Physical abuse or other abuse N= 66		.714	.857

Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi Square	.505		
Pseudo r²	.004		
Physical abuse or other abuse N= 235		1.337	.411

* p< .05. ** p< .01. *** p<.001.

Research Questions

This analysis will now explore a series of research questions generated from the literature on the behavior of hurting animals. Unless otherwise indicated, only findings that are statistically significant will be reported, and this varies from site to site. The analysis will conclude with models for each site. These models will incorporate the various findings of statistical significance and will contain the most pertinent variables related to animal abuse. These are the models that account for the greatest variance as reported by the pseudo r^2 while remaining statistically significant as a whole as indicated by chi square.

Research Question 1

The first research question asks what demographic variables, if any, are characteristic of children who hurt animals as compared to the specific site as a whole. The demographic variables considered are income, years of education, whether or not the primary caretaker has a high school diploma, equivalency or none, race of child, the number of siblings and relationship of primary caretaker to the child.

South Site. At the SO site race is recoded into a dichotomous variable where Black equals one and all others equal zero. There are 137 Black, 81 White and 3 Mixed Race children at this site. Primary caretaker is recoded into mother equals one and all others zero. There are 195 mothers as primary caretakers with the 26 remaining primary caretakers divided among several categories. The largest is grandmother with 15. High school education is recoded into a dichotomous variable where a high school diploma or equivalent equals one and no diploma or equivalent equals zero. The LONGSCAN variable had three categories of none, diploma and equivalency. The number of siblings

is a new variable accounting for biological, half and step siblings under 18 living in the home.

Individually, none of these variables is statistically significant with the dependent variable at the SO site. However, the primary caretaker variable is statistically significant when controlling for income: χ^2 (2, $\underline{N}$ = 215) = 6.111, $\underline{p}$ < .05. The pseudo r^2 = .071, $\underline{p}$ < .05, odds ratio = .220 for primary caretaker; $\underline{p}$ = .104, odds ratio = .761 for income. In this model primary caretakers who are not the biological mother and who have lower incomes are more likely to have responsibility for children who have hurt animals.

Northwest Site. At the NW site the same recodes to create dichotomous variables have been done. There are 53 Black, 124 White, 55 Mixed Race, 5 Hispanic and 5 Native American or Asian children. Most children – 196 – live with their biological mother. None of the demographic variables is individually statistically significant. The number of full, step and half siblings in the home approach statistical significance when controlling for whether or not the primary caretaker has a high school education: χ^2 (2, $\underline{N}$ = 151) = 5.68, $\underline{p}$ = .058. The pseudo r^2 = .073, $\underline{p}$ < .05, odds ratio = .535 for siblings with $\underline{p}$ =.879, odds ratio =.916 for high school or not. According to this model the fewer children in the home and the lack of a high school education for the primary caretaker increases the likelihood that the child is hurting animals.

Southwest Site. For the SW site, as with the other two sites, the same dichotomous recodes are carried out. There are 119 Black children, 90 White children, 51 Hispanic, 51 Mixed Race and 4 Native American or Asian. The SW site is one where a much larger percentage of children are in placement of some kind. Ninety-two children are with their biological mother, 36 with an adoptive mother, 76 with a foster mother, 30 with a

grandmother, 10 with their fathers, and the remaining 31 are split among other relative, other male relative and a case worker or unknown. Race has a significant association with whether or not children hurt animals with non-black children more likely to hurt animals than black children: χ^2 (1, $\underline{N}$ = 316) = 8.492 $\underline{p}$ < .01. The pseudo r^2 = .052, $\underline{p}$ < .01, odds ratio = .296.

This relationship holds when controlling for primary caretaker and whether or not the caretaker has a high school diploma: χ^2 (3, $\underline{N}$ = 160) = 8.674, $\underline{p}$ < .05. The pseudo r^2 = .107, $\underline{p}$ < .05, odds ratio = .107 for race; $\underline{p}$ = .768, odds ratio = 1.168 for primary caretaker and $\underline{p}$ =.698, odds ratio =.815 for high school or not. In this model non-black children who hurt animals were slightly more likely to live with their mothers, who in turn were somewhat less likely to have high school educations. Adding income to the model results in findings that approach significance such that lower income non-high school educated mothers are more likely to have children who hurt animals. Race remains significant in that non-black children are more likely to hurt animals than black children.

Overall there is variability in what demographic items are related to the dependent variable at the three sites, and none accounts for a large amount of variance. If there is a commonality, it is that stressors such as low income and lack of education impact caretakers such that their children are more likely to engage in this behavior.

Research Question 2

Southwest Site. The second research question to be explored is whether or not any relationship exists between foster placement and children who have hurt animals. Only the SW site has a sufficient number of children who are or have been in placement to adequately address this question, so it is the only site examined. LONGSCAN has two

variables asking about reasons for placement. The first asks why children were separated from primary caregivers for more than one week prior to their first year of life. The second uses the same categories in asking about separations greater than one week after their first year. Each of these variables was recoded into dichotomous variables in two forms. The first form compared separation for mandated placement (foster care, group home or shelter) against all other types of placements and the remainder of the sample who experienced no additional placements. The second form compared children mandated into placement against only those of their peers separated for other reasons. Thus four new dichotomous variables were created. The other options for placement are as follows:

1. Child hospitalized.

2. Caregiver hospitalized.

3. Formal visitation with parent.

4. Custody share or other visit with parent or parent figure.

5. Child typically has multiple caregivers.

6. Parent's job-related absence (including military service).

7. Parent took necessary trip.

8. Parent vacation.

9. Parent is in residential therapeutic program.

10. Parent in educational program.

11. Parent incarcerated.

12. Other family situation leading to informal transfer of responsibility.

13. Voluntary emergency or respite placement in foster home, group home or shelter.

14. Other.

Mandated foster placement is coded as one, with all other placements or no placement as zero. Mandated placement implies the removal was a CPS decision and accounted for the majority of placements prior to the first year and subsequently so it seems the most pertinent way to examine the data as to whether or not the removal is related to some type of abuse or neglect. This, in turn, seems the best way to look at removal for relationship to the dependent variable of hurting animals. In the category of prior to the first year of life there are 49 placements; 27 of these are mandated. After the first year there are 88 placements, 47 of which are mandated. A small number of secondary placement reasons are not included in the data analysis. Binary logistic regressions for three of the new dichotomous variables show no statistical significance: mandated placement prior to the first year for both the entire sample and only those placed for any reason and mandated placement after the first year for the whole sample. Mandated placement as opposed to other types of placements is statistically significant when looking at the subset of children placed for any reason: $\chi^2 (1, \underline{N} = 88) = 7.003$, $\underline{p} < .01$. The pseudo $r^2 = .151$, $\underline{p} < .05$, odds ratio = 9.474. Nine of the 36 children in the SW site identified as hurting animals are in a mandated placement after their first year of life. Only one child who has hurt animals is in placement for other reasons. As percentages, 25% of children who have hurt animals are in a mandated placement compared to 13 % of the children who have not.

Entering other variables into this model results in additional findings of interest. Gender, which is significant at the SW site in that boys are more likely than girls to hurt animals, shows statistical significance with mandated placement versus other types of placement: $\chi^2 (2, \underline{N} = 88) = 13.145$, $\underline{p} = .001$. The pseudo $r^2 = .273$, $\underline{p} < .05$, odds ratio =

11.887 for placement; $\underline{p} < .05$, odds ratio = 6.631 for gender. Boys who experience a mandated placement as compared to all children placed for more than one week after their first year of life are more likely to hurt animals than girls who experience a mandated placement. For the mandated placement group as a whole, more girls are in placements.

Physical abuse, previously shown not to be statistically significant in discriminating between those who do and do not hurt animals at any of the three sites is not significant in any model involving this mandated placement variable. The coefficient for physical abuse is consistently negative, indicating that other abuse rather than physical abuse is more likely as this variable was recoded into a dichotomous variable with physical abuse coded as one and other abuse coded as zero.

Other variables examined are externalizing behaviors, internalizing behaviors, aggressive behaviors, delinquent behaviors and attention problems. The model that accounts for the greatest variance with placement remaining statistically significant is that with attention problems added: $\chi^2 (2, \underline{N} = 88) = 17.267$, $\underline{p} < .001$. The pseudo $r^2 = .351$, $\underline{p} < .05$, odds ratio = 15.71 for placement; $\underline{p} < .01$, odds ratio = 1.462 for attention problems. When gender is entered the results are: $\chi^2 (3, \underline{N} = 88) = 19.280$, $\underline{p} < .001$. The pseudo $r^2 = .388$, $\underline{p} < .05$, odds ratio = 14.629 for placement; $\underline{p} < .05$, odds ratio = 1.356 for attention problems and $\underline{p} = .172$, odds ratio = 3.536 for gender.

Gender is not statistically significant in this model. Mandated foster placement does discriminate between children who hurt animals and those who do not for the subgroup of children placed for some reason after their first year. Boys in a mandated placement are more likely to hurt animals as are children with attention problems in a

mandated placement. While the specific reasons for placement are not able to be determined, physical abuse does not appear to be the only factor.

There is also a trend towards mandated foster placement for more than a week after the first year when controlling for gender with aggressive behaviors: $\chi^2 (3, \underline{N} =88) = 20.459$, $\underline{p} < .001$. The pseudo $r^2 = .409$, $\underline{p} = .071$, odds ratio = 7.85 for placement; $\underline{p} < .05$, odds ratio = 1.149 for aggressive behavior and $\underline{p} < .05$, odds ratio = 6.925 for gender. Boys exhibiting aggressive behavior show some increased likelihood of being placed in mandated foster care and are more likely to hurt animals.

Research Question 3

The third research question to be explored involves whether parenting attitudes show any relationship with the dependent variable of hurting animals. The literature has focused on parent behaviors including physical abuse, corporal punishment, domestic violence and alcohol use. It seems useful to examine parental attitudes, particularly as the instrument to be utilized – the Adult-Adolescent Parenting Inventory (AAPI, Bavolek, 1984) addresses corporal punishment and attitudes of empathy towards the child. Whether or not parents show empathy towards the child may impact the child's own developing sense of empathy. This instrument is administered at all three sites of interest and is examined through its four subscales: Appropriate Empathy, Appropriate Expectations, Rejection of Physical Punishment and Appropriate Family Roles.

At the NW site, none of the subscales of the AAPI showed any statistical significance with the dependent variable. The situation is the same at the SW site; none of the subscales show statistical significance with the behavior of hurting animals. Only the SO site shows relationships between the AAPI subscales and the dependent variable and

that is for two of the subscales: the Appropriate Expectations Subscale and the Empathy Subscale. The former shows a relationship with hurting animals when the aggressive behavior scale of the CBCL is also entered into the regression. The Empathy Subscale shows a trend that approaches significance when entered with the dependent variable. The regression results are as follows for the Appropriate Expectations Subscale: χ^2 (2, $\underline{N}$ = 221) = 28.733, $\underline{p}$ < .001. The pseudo r^2 = .301, $\underline{p}$< .001, odds ratio = 1.177 for aggressive behavior and p< .05, odds ratio = .911 for appropriate expectations. Primary caretakers who have less appropriate expectations for children with aggressive behavior are more likely to have children who hurt animals.

The Empathy Subscale approaches statistical significance: χ^2 (1, $\underline{N}$ = 221) = 3.82, $\underline{p}$ = .051. The pseudo r^2 = .042, $\underline{p}$ = .057, odds ratio = .908. The coefficient indicates that lower scores in this subscale which would indicate lower parental empathy towards the child are associated with the behavior of hurting animals. The two other subscales showed no statistical significance with the dependent variable at the SO site.

Research Question 4

Primary Caretaker and Child Characteristics and Behaviors. The next research question examines a range of variables associated with both maternal (or other primary caretaker) behaviors, child development indices, as well as separation from caretaker. This last is coded separately from the placement variables previously discussed. According to bioecological theory, the relationship between a child and his or her primary caretaker is crucial particularly in early development. Ascione (2005) also raises the possibility that at early ages the behavior of hurting animals is something children may do out of curiosity or exploration rather than other more problematic motivations.

Social learning theory posits that children may learn and imitate behaviors that are problematic particularly from their primary caretakers. Attachment theory states that problems in the bond between mother or other primary caretaker and the child can result in a range of problems as well. Primary caretaker variables will be examined first, then child variables and finally variables that may shed light on the relationship between the two.

Level of depressive symptoms is assessed by the CESD which only shows a correlation with the dependent variable at the SO site. The mean score is 13.91 with a range of 0 to 54. Skewness is 1.055 within the range for a normal curve and kurtosis is .463. The CESD results with the dependent variable at the SO site are: $\chi^2\,(1, \underline{N} = 221) = 4.359$, $\underline{p} < .05$. The pseudo $r^2 = .048$, $\underline{p} < .05$, odds ratio = 1.042. Mothers or other primary caretakers with higher scores on the CESD (that is, showing more risk for depression) are more likely to have children who hurt animals. However, very little variance is accounted for when controlling for any other variables of interest or previously shown to be statistically significant. Either the CESD relationship is no longer statistically significant without substantially increasing the variance of the model or the model itself is no longer statistically significant. Variables controlled for are physical abuse, AAPI empathy score, attention problems of child, aggressive behavior of child, internalizing and externalizing behaviors and child gender.

Alcohol use is also examined by a short four-item scale adapted from Ewing (1984) and Ewing and Rouse (1970). Higher scores indicate more risk for alcoholism. This scale is coded dichotomously with zero equal to no and one equal to yes. The mean score is .8991 with skewness of 1.157, very slightly skewed to the right but within the

range for a normal curve and kurtosis of .308. The range is 0 to 4. The binary logistic

regression is not significant, but results are reported as they approach significance at the

SO site: χ^2 (1, $\underline{N} = 109$) = 3.44, $\underline{p}$ = .064. The pseudo r^2 = .071, $\underline{p}$ = .057, odds ratio =

1.608. Of the 221 primary caretakers at the SO site, 109 say that they do drink alcohol

and 80 went on to complete the scale. Of these 109, nine are the primary caretakers of

children who hurt animals. There are 16 children at this site reported as having exhibited

this behavior.

   Northwest and Southwest Sites. At the NW and SW sites, neither the CESD score nor

the alcohol score showed any significance with the dependent variable. The SW site has a

larger number of primary caretakers who are not the biological mother as opposed to the

other two sites. Regardless, at both these sites depressive symptoms and problem

drinking demonstrate no relationship with children hurting animals.

 Child Characteristics and Behaviors

        Turning to child characteristics, results from the Battelle Developmental

Inventory Screening Test (BDI, Newborg, Stock, Wnek, Guidubaldi, Svinicki, Dickson &

Markley, 1984) will be discussed. As developmental issues may impact the behavior of

hurting animals in young children (Ascione, 2005), assessing this area seems relevant.

The BDI can be used with children from 6-months to 8-years-of-age. Its purpose is to

examine crucial developmental skills in five areas: Personal-Social Skills, Adaptive

Behavior, Psychomotor Ability, Communications and Cognition. Scores will be

examined in these five areas separately. Personal-Social Skills looks at self-concept,

coping, relations with peers and adults, and expression of feeling. Adaptive Behavior

relates to attention, ability to care for self in an age-appropriate manner and

responsibility. Psychomotor Ability assesses fine and gross motor skills. Communication addresses speech, and Cognitive examines academic skills, including memory, reasoning and conceptual ability. Raw scores at the age 4 interview, when most of the children are between 44-months and 6-years-old, are used in all analyses. Lower scores indicate more developmental delay as coded by LONGSCAN. Coding is on a three-point Likert scale with 0 = Low, 1 = Typical and 2 = High. The data for the BDI are collected both from the primary caregiver and by observation of the child in both structured and unstructured settings.

South Site. At the SO site, the Psychomotor Ability, Communication and Cognitive scales are not significant in binary logistic regression with the dependent variable.

The Personal-Social Scale has a mean raw score of 32.70 with skewness of -1.322, slightly skewed to the left and kurtosis of 3.965. The range is 0 to 40 with a maximum possible score of 40. Results of the binary logistic regression are: χ^2 (1, $\underline{N} =$ 220) = 4.273, $\underline{p} < .05$. The pseudo $r^2 = .049$, $\underline{p} < .05$, odds ratio = .923. Children who have lower scores on the Personal-Social Scale of the BDI are more likely to hurt animals

The Adaptive Behavior Scale has five items removed for zero variance: swallows food from a spoon, attends to sound or activity for 15 or more seconds, supports a bottle to feed self, feeds self bite-sized pieces and removes small clothing item. These items are targeted to younger children; their absence from the scale should not affect reliability for the age group in question. The mean raw score is 33.3045 with a range of 10 to 40 of a possible 40. The binary logistic regression shows: χ^2 (1, $\underline{N} = 220$) = 4.026, $\underline{p} < .05$. The pseudo $r^2 = .046$, $\underline{p} < .05$, odds ratio = .901. The results are similar to those for the

Personal-Social Scale in that children who have lower scores on the Adaptive Behavior Scale of the BDI are statistically significantly more likely to hurt animals.

Northwest Site. For the NW site none of the BDI scales showed statistical significance with the dependent variable. At this site, children who hurt animals are functioning no better or worse than their peers in the sample as measured by the BDI.

Southwest Site. At the SW site neither Psychomotor Ability nor Communication show statistical significance with the dependent variable. The other three scales of the BDI do show statistical significance, however. On the Personal-Social Scale two items – has awareness of hands and desires to be picked up – are removed for zero variance. The mean raw score is 27.9618, with scores ranging from 7 to 40 of a possible 40. Binary logistic regression indicates: $\chi^2 (1, \underline{N} = 312) = 6.391$, $\underline{p} < .05$. The pseudo $r^2 = .040$, $\underline{p} < .05$, odds ratio = .918. Children who have lower scores on this scale are more likely to exhibit the behavior of hurting animals.

On the Adaptive Behavior Scale four items are removed for zero variance: swallows food from a spoon, attends to sound or activity for 15 or more seconds, supports a bottle to feed self and feeds self bite-sized pieces. The mean raw score is 28.1911 with a range of 9 to 38 of a possible 40. For the binary logistic regression: $\chi^2 (1, \underline{N} = 312) = 3.879$, $\underline{p} < .05$. The pseudo $r^2 = .024$, $\underline{p} < .05$, odds ratio = .922. Again, the indication is that children who have lower scores on the Adaptive Behavior Scale of the BDI are statistically significantly more likely to hurt animals.

For the Cognitive Scale at the SW site items removed for zero variance are: follows visual stimulus, feels and explores objects and uncovers hidden toy. As with items removed from the other scales, these are targeted towards much younger children.

The mean raw score is 22.750 with a range of 8 to 32. The maximum possible score is 36. For the binary logistic regression, results are as follows: $\chi^2 (1, \underline{N} = 310) = 4.287$, $\underline{p} < .05$. The pseudo $r^2 = .028$, $\underline{p} < .05$, odds ratio $= .914$. For the Cognitive Scale of the BDI, children who hurt animals have statistically significantly lower scores as compared to children who have not been identified as engaging in this behavior.

Given that the SW site is the only one where gender is statistically significant with the dependent variable, such that boys are more likely than girls to hurt animals, binary logistic regression controlling for gender is completed for each significant scale. Each of the three models is statistically significant, as is gender. For only one of the BDI scales does the scale itself remain significant, but the direction of each model is the same: boys who have lower scores on the scales are more likely to hurt animals. Results are presented only for the scale where both independent variables are significant, the Personal-Social Scale: $\chi^2 (2, \underline{N} = 311) = 12.652$, $\underline{p} < .01$. The pseudo $r^2 = .079$, $\underline{p} < .05$, odds ratio $= .928$ for the scale, $p < .05$, odds ratio $= 2.487$ for gender.

The NW site, which has on average the youngest cohort of children, showed no statistically significant differences in the BDI scales. The SO and SW sites show statistically significantly lower scores in the areas of personal social relations and adaptive behaviors. Additionally, the SW had lower scores in the cognitive area with significant gender effects for all three scales, particularly the personal social relations area. The variance accounted for by any of these analyses is small; the largest is the Personal-Social Relations Scale at the SO site at just under 5%. Controlling for gender at the SW site increases variance to almost 8% for this scale.

Day Care Experiences

As many of the children at all three sites are involved in some type of daycare, the question of whether or not this is related to the dependent variable is examined. Daycare is coded in eight different variables not mutually exclusive. Only relevant findings for each site are reported. From a bioecological perspective, time in day care, especially if it is fulltime, can be an important part of a young child's life experience. It is also where children can display prosocial as well as antisocial behaviors in addition to learning new behaviors. The pertinent variables are:

1. Child in regular care away from home.

2. Child ever in child care.

3. Child in day care center.

4. Child in day care home.

5. Child in relative care.

6. Child in play groups.

7. Child in other child care (not specified).

8. Years child has spent in child care.

One through seven are coded dichotomously; years is on a three-point scale with 1 = less than 1 year, 2 = 1 to 2+ years and 3 = 3 to 4+ years.

South Site. At the SO site, 120 of 221 children are in regular child care at the age 4 interview. Of the 101 not currently in care, 34 have been at some point. For years spent in child care the total number is 152: 67 for less than a year, 43 for 1 to 2 or more years and 47 for 3 to 4 or more years. The binary logistic regression for those currently in care approaches statistical significance: $\chi^2 (1, \underline{N} = 221) = 3.727$, $\underline{p} = .054$. The pseudo $r^2 =$

.041, $p = .064$, odds ratio $= .356$. Children not in child care are more likely to have hurt animals.

For years spent in child care the model is statistically significant, and the variable, years spent in care, approaches significance: $\chi^2 (1, \underline{N} = 152) = 4.40$, $p < .05$. The pseudo $r^2 = .084$, $p = .055$, odds ratio $= 2.635$. The less time spent in child care, the more likely a child is to have hurt animals.

Northwest Site. For the NW site, 157 children are presently in regular child care, 93 are not, with 11 system missing. Fifty-nine of the 93 have been in care at some time. As far as years spent in care, 102 children have spent less than one year, 76 have spent 1 to 2 or more years and 34 have spent 3 to 4 or more years in some child care setting. For the variable in regular care away from home, the binary logistic regression is statistically significant: $\chi^2 (1, \underline{N} = 232) = 5.374$, $p < .05$. The pseudo $r^2 = .046$, $p < .05$, odds ratio $= .371$. Children who are not in a day care setting are more likely to hurt animals. This is the only statistically significant finding related to the daycare variables at this site.

Southwest Site. At the SW site, 141 children are in regular care away from home, 176 are not, with 10 system missing. Fifty-five of the 176 have been in care at some point. Of the 195 children included in the years in care variable, 123 have spent less than a year, 65 have spent 1 to 2 or more years, and 7 have spent 3 to 4 or more years in a child care setting. None of the variables related to daycare demonstrates statistical significance with the dependent variable at this site.

Child Mental Health Treatment

Whether or not a child is seen as needing and receives any mental health treatment is examined based on the literature in that children in treatment show higher

rates for the behavior of hurting animals although that is not necessarily why they are in treatment. Early identification of animal abuse is important for both research and treatment purposes. Whether or not this behavior is predictive of future problems in this area and for antisocial behavior in general is an ongoing topic of research interest. Dadds, Whiting, et al. (2006); Guymer, et al. (2001) and Luk et al. (1999) have all addressed these issues.

There are numerous treatment variables in the LONGSCAN data; only three are examined, as the number involved in each site is low. These are: whether or not the mother (or other primary caretaker) felt the child needed mental health help, if the child received it and finally, from whom: mental health professional, health care professional, social service worker or school counselor. All are dichotomous variables with $0 =$ No and $1 =$ Yes. The variables for providers are not necessarily mutually exclusive.

South Site. At the SO site 46 of 221 caretakers felt their child needed mental health treatment. Of these 31 received help. Eleven children saw a mental health professional; ten saw a health care professional. For social service worker and school counselor the numbers are six and eight respectively. Only "child saw a mental health professional" is statistically significant for the model with the variable approaching statistical significance: $\chi^2(1, \underline{N} = 30) = 4.778$, $\underline{p} < .05$. The pseudo $r^2 = .248$, $\underline{p} = .053$, odds ratio $= 10.286$. Children who have seen a mental health professional are more likely to hurt animals. Expressed as percentages, 31% of the children at the SO site who are identified as hurting animals saw a mental health professional. Only 12% of the other children saw a mental health professional. The reasons why the children who hurt animals saw any professional are varied (as recorded by separate variables for primary

and secondary reasons for seeking treatment): somatic problems, trauma or suspected maltreatment; other problems and interpersonal problems or antisocial behavior. Only the last category includes aggression towards animals in its description. It cannot be determined if that is the specific reason why these children were referred for mental health help.

Northwest Site. For the NW site 103 of 250 primary caretakers felt their child needed mental health help with 11 system missing. Of this group, 94 received mental health help. Thirty-nine saw a mental health professional, 25 saw a health care professional, 12 saw a social service worker and 4 saw a school counselor. None of the treatment variables examined showed statistical significance with the dependent variable at this site. Ten of the children who hurt animals at this site saw some type of mental health professional. This is 40% of the group identified as hurting animals. Thirty-two percent of the other children received some type of mental health intervention. The reasons children who hurt animals received help, as at the SO site, are varied: somatic, developmental issues, interpersonal problems or antisocial behavior, attention problems, adjustment issues and other problems. Again, the category of interpersonal problems or antisocial behavior which includes aggression towards animals is a treatment reason for some children but whether this is the specific reason is not known.

Southwest Site. Turning to the SW site, 133 of 318 primary caretakers felt their child needed mental health help, with 9 system missing. Of this group, 122 received mental health assistance, with 83 seeing a mental health professional. Twenty-six saw a health care professional, 22 a social service worker and 9 a school counselor. The only treatment variable to show statistical significance with the dependent variable is mother

felt child needed mental health help: $\chi^2(1, \underline{N} = 317) = 6.238, \underline{p} < .05$. The pseudo $r^2 =$ .038, $\underline{p} < .05$, odds ratio = 2.443. Children who are seen by their primary caretakers as needing mental health help are more likely to hurt animals. Nineteen of the children who hurt animals received some type of mental health intervention. This is 52.7% of the group reported as hurting animals. Of the remaining children, 35% received some form of mental health help. The reasons children who hurt animals received help include developmental issues, interpersonal problems or antisocial behavior, attention problems, trauma or suspected maltreatment and other problems. As with the other two sites it is not possible to determine if hurting animals was the specific reason a child received treatment.

Research Question 5

Home and Neighborhood Environments. Consideration of child environment and neighborhood environment is in keeping with the bioecological perspective in looking at all elements that may impact a child's life for good or ill. LONGSCAN provides scales for each, developed for the purposes of the longitudinal study of which this dataset is the first wave. Only the SO site showed results approaching statistical significance for the Home Environment Scale. The scale range is 3 to 15 of a possible 15, with a mean of 11.1855. Logistic regression results are: $\chi^2(1, \underline{N} = 221) = 3.673, \underline{p} = .055$. The pseudo r^2 = .041, $\underline{p} = .054$, odds ratio = .841. There is a trend towards a less appropriate home environment for children who have hurt animals at the SO site.

The neighborhood scale consists of nine questions coded on a four-point Likert scale with 1 = very much like your neighborhood, 2 = somewhat like your neighborhood, 3 = very little like your neighborhood and 4 = not all like your neighborhood. Five

questions are recoded for directionality, and higher scores equate to a less desirable

neighborhood. Sample items include "there is much drug abuse" and "there are people I

can count on". This scale only demonstrates significance with the dependent variable at

the NW site. Scores range from 8 to 36 with a mean score of 19.013. Binary logistic

regression results are as follows: χ^2 (1, $\underline{N}$ = 231) = 9.294, $\underline{p}$ < .01. The pseudo r^2 = .079, $\underline{p}$

< .01, odds ratio = 1.094. The primary caretakers of children who live in unsatisfactory

neighborhoods or perceive them to be less satisfactory are more likely to have children

who hurt animals than the caretakers of children who do not hurt animals.

<div align="center">Site Models</div>

This section of the data analysis will incorporate for each site what variables are

most related to the dependent variable, hurting animals, in order to create binary logistic

models that account for the greatest amount of variance. As has been demonstrated

previously, there are common threads as well as differences among the sites.

Table 21 shows logistic regression CBCL subscale findings for each of the sites.

Only the social problems subscale at the NW site is not statistically significant with the

dependent variable. The NW site tends to have lower alphas for the subscales than the

other two sites. Aggressive behavior accounts for the greatest amount of variance at all

three sites and the alphas for these subscales are in an acceptable range. The variance

accounted for by the delinquent behavior subscale at the SW and NW sites accounts for

the second greatest amount of variance but the alphas are low for this subscale at these

two sites. The social problems subscale for the SW site has the next largest amount of

variance but the alpha for this subscale is also low. Attention problems at all three sites

have acceptable alphas and account for the second largest amount of variance at the SO

<div align="center">162</div>

site. Attention problems account for 8.2% of the variance at the NW site after aggressive behavior and delinquent behavior. At the SW site attention problems account for 13.8% of the variance with the dependent variable after aggressive behavior, delinquent behavior and social problems. Compared to their peers at their respective sites, these children appear to be having more difficulty in multiple areas of functioning. It may be that striking out in some way at animals is one expression of their overall distress.

TABLE 21
Reliabilities and Logistic Regression Results of CBCL Scales with Dependent Variable

	South Site	Northwest Site	Southwest Site
Social Problems			
Alpha	.540	.480	.544
Chi Square	17.795	3.37	24.367
Pseudo r²	.191***	.029	.146***
Aggressive Behavior			
Alpha	.901	.891	.892
Chi Square	24.894	15.19	48.607
Pseudo r²	.263***	.128***	.280***
Attention Problems			
Alpha	.757	.721	.798
Chi Square	18.404	9.648	23.052
Pseudo r²	.197***	.082**	.138***
Delinquent Behavior			
Alpha	.734	.526	.644
Chi Square	17.966	10.48	27.798

Pseudo r²	.193***	.089**	.166***
Anxiety Depression Scale			
Alpha	.798	.800	.757
Chi Square	14.583	7.129	7.703
Pseudo r²	.158***	.061**	.047**
Somatic Scale			
Alpha	.678	.487	.619
Chi Square	8.319	4.374	4.22
Pseudo r²	.091**	.038*	.026*
Withdrawn Scale			
Alpha	.704	.614	.727
Chi Square	10.784	6.705	7.097
Pseudo r²	.118**	.058**	.044**

* $p < .05$.   ** $p < .01$.   *** $p < .001$.

South Site. The variable that accounts for the greatest variance at this site is aggressive behavior at 26.3%; next is attention problems at 19.7%. Both variables are as measured by the CBCL subscales for these behaviors. When both are entered into a binary logistic regression only aggressive behavior remains statistically significant: $\chi^2(2, \underline{N} = 221) = 26.15$, $\underline{p} < .001$. The pseudo $r^2 = .275$, $\underline{p} < .01$, odds ratio $= 1.129$ for aggressive behavior with $\underline{p} = .266$, odds ratio $= 1.104$ for attention problems. However, when examining each of these subscales separately with other statistically significant variables, three different models emerge, one relating to aggressive behavior and two for attention problems. While the numbers of children who hurt animals in each of these

analyses is small, they may illuminate the multiplicity of factors that seem to impact this behavior.

Statistics for Model 1 are in Table 22. Aggressive behavior is significant in this model and the empathy subscale of the AAPI approaches significance. Nine of the 16 children identified as hurting animals are included in this analysis. Children who exhibit aggressive behavior are more likely to hurt animals. Their primary caretakers show less empathy, are at higher risk for alcoholism and less likely to be depressed.

Model 2 in Table 23 shows attention problems to be statistically significant when also controlling for the empathy subscale of the AAPI, CESD Scale, and the Alcohol Scale. Nine of the 16 children who have hurt animals are included in this analysis as well. Their caretakers tend to show less empathy, higher risk for alcoholism and a slight tendency towards depression.

Model 3 in Table 24 shows attention problems to be statistically significant when controlling for treatment by a mental health professional and years in day care such that children who have seen a mental health professional and have spent more years in day care are more likely hurt animals. Five of the children who have hurt animals are included in this analysis which has a small number of cases overall (27). Aggressive behavior demonstrates no significant results with these additional when entered into a model. Although this model seems to contradict earlier findings that indicate children who have spent less time in child care are more likely to have hurt animals it may be that children in day care are more likely to be identified as needing mental health treatment and primary caretakers then receive encouragement and support to access such help.

TABLE 22
Hurting Animals with Aggressive Behavior, Empathy, Depression and Alcohol Risk

Model 1: South Site	Model Statistic	Odds Ratio	Standard Error
Chi square	30.177***		
Pseudo r²	.557		
Aggressive Behavior		1.347**	.089
AAPI Empathy Subscale		.795	.120
CESD Scale		.918	.056
Alcohol Scale		1.551	.354

N= 109
* p< .05.   ** p< .01.   *** p<.001.

TABLE 23
Hurting Animals with Attention Problems, Empathy, Depression and Alcohol Risk

Model 2: South Site	Model Statistic	Odds Ratio	Standard Error
Chi square	17.06**		
Pseudo r²	.333		
Attention Problems		1.343*	.125
AAPI Empathy Subscale		.864	.083
CESD Scale		1.005	.040
Alcohol Scale		1.250	.310

N= 109
* p< .05.   ** p< .01.   *** p<.001.

TABLE 24
Hurting Animals with Attention Problems, Mental Health Treatment and Day Care

Model 3: South Site	Model Statistic	Odds Ratio	Standard Error
Chi square	13.255**		
Pseudo r²	.629		
Attention Problems		1.317*	.133
Saw Mental Health Professional		20.257	1.772
Years in Day Care		10.33	1.917

N= 27
* p< .05.   ** p< .01.   *** p<.001.

Northwest Site. Statistics for the NW site indicate that the CBCL subscales for

aggressive behavior and delinquent behavior account for the most variance, 12.8% and

8.9%, respectively. Together these two subscales comprise the externalizing behaviors

syndrome. However, as the reliability is low for the delinquent behavior subscale only

the aggressive behavior subscale is utilized in model development. Additionally, utilizing

the externalizing behavior syndrome does not add to the variance accounted for in any

substantive way.   There are no significant primary caretaker findings to be included.

There are two models that account for the greatest amount of variance at this site.

The first includes aggressive behavior, whether or not the child is in regular day care or

not and the quality of the neighborhood environment. All variables are statistically

significant. Twenty –seven percent of the variance is accounted for in this model. See

Model 1 in Table 25 for specific statistics. All 25 of the children identified as hurting

animals are included in this analysis. Children who exhibit aggressive behavior, live in

poorer quality neighborhoods and are less likely to be in regular day care are more likely

to hurt animals.

Model 2 in Table 26 examines attention problems with the same additional

variables as Model 1 with essentially the same results. This model accounts for 23.8% of

the variance and includes all 25 children reported as hurting animals. Children who do so

are also more likely to have attention problems, live in poorer quality neighborhoods and

are less likely to be in a day care setting. When aggressive behavior and attention

problems are entered into binary logistic regression together with the other variables all

remain statistically significant with the exception of attention problems; the model also

remains statistically significant. There is very little increase in the pseudo r^2. Both

models are presented as both aggressive behavior and attention problems seem to have

some relationship with the dependent variable although the relationship of aggressive

behavior is stronger.

TABLE 25
Hurting Animals with Aggressive Behavior, Day Care and Neighborhood

Model 1: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	33.293***		
Pseudo r²	.270		
Aggressive Behavior Subscale		1.154***	.035
Regular Day Care or Not		.236**	.501
Quality of Neighborhood		1.101**	.031

N= 231
* p< .05.   ** p< .01.   *** p<.001.

TABLE 26
Hurting Animals with Attention Problems, Day Care and Neighborhood

Model 2: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	29.078***		
Pseudo r²	.238		
Attention Problems Subscale		1.348***	.080
Regular Day Care or Not		.242**	.490
Quality of Neighborhood		1.112**	.032

N= 231
* p< .05.   ** p< .01.   *** p<.001.

Southwest Site. The SW site presents the most complex picture of factors

interacting with the dependent variable. This is the site with the largest number of

children who hurt animals and the highest incidence of this behavior. They also appear to

have the greatest risk for some form of maltreatment as evidenced by the number of

allegations and substantiated reports. It is also a site where the children were all in early

foster care and some continued in and out of foster care or were adopted. Thus multiple

models will be explored highlighting various findings that seem pertinent based on the

literature. The variable for physically abused or not has not been statistically significant

throughout the data analyses for all sites. In fact, the direction has been that other

maltreatment as opposed to physical abuse is more likely if not statistically significant.

Given that this is an ongoing area of contention in the childhood animal abuse literature it

seems important to highlight that physical abuse or other abuse may be a factor in certain

circumstances although it was not shown to be statistically significant in this data analysis.

The models included examine aggressive behavior and attention problems in relation to gender which is statistically significant at the SW site. They also look at the variables for mandated foster placement, the BDI Personal-Social and Cognitive scales and whether or not the primary caretaker felt the child needed mental health treatment. Models 1, 2 and 3 in Table 27 show the relationships of aggressive behavior, attention problems and gender at this site. Attention problems are not significant when entered with aggressive behavior and gender although the latter two variables are statistically significant. Model 2 shows that aggressive behavior and gender account for essentially the same amount of variance (30.6% versus 30.7%) as when attention problems are included. On its own, the attention problems variable is statistically significant as is gender (Model 3) but less variance is explained (16.5%). All of these models indicate that children who are male, show aggressive behavior and have attention problems are more likely to hurt animals as compared to the other children at this site.

Models 4 and 5 in Table 28 present findings related to mandated foster placement or other type of placement for more than a week after a child's first year. Model 4 shows that aggressive behavior and gender are statistically significant although the placement variable is not (p = .071). Boys who show aggressive behavior and experience a mandated placement are more likely to hurt animals with 40.9% of variance accounted for. If attention problems are placed into a logistic regression this variable and the placement variable are statistically significant but gender is not although the direction is

such that boys are still more likely to be placed and have attention problems. The variance in this model is 38.8%.

Model 6 in Table 29 shows the results for both aggressive behavior and attention problems with mandated placement. Attention problems remain statistically significant and placement approaches significance while aggressive behavior is not significant. Children who experience placement in relation to attention problems are more likely to hurt animals. Gender is not necessarily a factor although the direction indicates it is more likely to be boys. The variance accounted for is 39.5%. If gender is added the model is still statistically significant, placement remains approaching significance and the other three variables are no longer significant.

The variable for whether or not the primary caretaker felt the child needed treatment is statistically significant with the dependent variable of hurting animals at the SW site so it is examined with other variables: aggressive behavior, attention problems and gender. Model 7 in Table 30 shows results for this variable with aggressive behavior. The variance is 30.8%; gender and aggressive behavior are statistically significant. The treatment variable is not but the direction indicates that boys who have aggressive behavior and whose primary caretakers do not feel that they need mental health treatment are more likely to hurt animals.

Model 8 in Table 30 indicates that both gender and attention problems are statistically significant with the dependent variable with 16.6% of variance accounted for such that boys with attention problems are more likely to hurt animals. The treatment variable is again not statistically significant but the direction here shows that primary caretakers felt that these children do need mental health treatment. When aggressive

behavior and attention problems are entered together with gender and the treatment

variable only gender and aggressive behavior remain statistically significant and the

treatment variable's direction indicates primary caretakers do not feel the children need

mental health treatment; 30.9% of variance is accounted for.

The variable of whether or not the primary caretaker feels the child needs mental

health treatment is also examined with the variables for gender, aggressive behaviors,

attention problems and mandated or other placement greater then one week after the first

year of life. Two models result; one with aggressive behavior and one with attention

problems. Model 9 in Table 31 shows that aggressive behavior and gender are

statistically significant with placement approaching significance (p = .067). Boys with

aggressive behavior are more likely to hurt animals. They are more likely to experience a

mandated placement but not to a statistically significant degree. The treatment variable is

not statistically significant but the direction indicates that the primary caretaker feels

treatment is warranted. The variance accounted for is 41.3%.

Model 10 in Table 31 presents the findings for attention problems. Gender and

treatment are not significant in this model; attention problems and placement are

statistically significant. Children who have attention problems and experience a

mandated placement are more likely to hurt animals. The direction of the treatment

variable indicates that the primary caretaker feels the child needs mental health treatment.

The variance in this model is 35.3%.

The final two models for the SW site examine the relationships of the BDI

Personal-Social and Cognitive domain scores with gender and the primary caretaker need

for treatment variable. Model 11 in Table 32 shows that all three variables: gender,

personal-social score and need for treatment are statistically significant with the

dependent variable with 10.5% of variance accounted for. Boys who have lower scores

on this domain and whose primary caretakers feel they need mental health treatment are

more likely to hurt animals.

Model 12 in Table 32 shows results for the cognitive score with gender and the

treatment variable. The cognitive score is not statistically significant (p = .095) although

gender and the treatment variable are significant. Boys who hurt animals are more likely

to be seen as needing mental health treatment by their primary caretaker and have lower

scores on the Cognitive Domain of the BDI although not to a statistically significant

degree. The variance accounted for is 9%.

TABLE 27
Hurting Animals with CBCL Scales and Gender

Model 1: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	53.513***		
Pseudo r²	.307		
Aggressive Behavior		1.16***	.032
Attention Problems		1.109	.059
Gender		5.452*	.427
Model 2: Southwest Site			
Chi square	53.410***		
Pseudo r²	.306		
Aggressive Behavior		1.167***	.026
Gender		2.506*	.422
Model 3: Southwest Site			

	Model Statistic	Odds Ratio	Standard Error
Chi square	27.701***		
Pseudo r²	.165		
Attention Problems		1.213***	.045
Gender		2.328*	.397

N= 316
* p< .05.   ** p< .01.   *** p<.001.

TABLE 28
Hurting Animals with CBCL Scales, Gender and Foster Care Placement

Model 4: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	20.459***		
Pseudo r²	.409		
Aggressive Behavior		1.149*	.057
Gender		6.925*	.905
Mandated Placement or Other Placement > 1 week after 1st year		7.85	1.143
Model 5: Southwest Site			
Chi square	19.28***		
Pseudo r²	.388		
Attention Problems		1.356*	.131
Gender		3.536	.924
Mandated Placement or Other Placement > 1 week after 1st year		14.629*	1.235

N= 88
* p< .05.   ** p< .01.   *** p<.001.

TABLE 29
Hurting Animals with CBCL Scales and Foster Care Placement

Model 6: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	19.685***		
Pseudo r²	.395		
Aggressive Behavior		1.098	.061
Attention Problems		1.331*	.134
Mandated Placement or Other Placement > 1 week after 1st year		11.453	1.292

N= 231
* p< .05.   ** p< .01.   *** p<.001.

TABLE 30
Hurting Animals with CBCL Scales, Gender and Need for Mental Health Treatment

Model 7: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	53.696***		
Pseudo r²	.308		
Aggressive Behavior		1.175***	.029
Gender		2.568*	.425
Primary Caretaker Felt Child Needed Mental Health Treatment		.786	.452
Model 8: Southwest Site			
Chi square	27.862***		
Pseudo r²	.166		
Attention Problems		1.201***	.051
Gender		2.337*	.397

	Model Statistic	Odds Ratio	Standard Error
Primary Caretaker Felt Child Needed Mental Health Treatment		1.189	.431

N= 316
* p< .05.   ** p< .01.   *** p<.001.

TABLE 31
Hurting Animals with CBCL Scale, Foster Care Placement and Mental Health Treatment

Model 9: Southwest Site	**Model Statistic**	**Odds Ratio**	**Standard Error**
Chi square	20.672***		
Pseudo r²	.413		
Aggressive Behavior		1.138*	.061
Gender		6.456*	.913
Mandated Placement or Other Placement > 1 week after 1st year		8.208	1.15
Primary Caretaker Felt Child Needed Mental Health Treatment		1.491	.861
Model 10: Southwest Site			
Chi square	17.393**		
Pseudo r²	.353		
Attention Problems		1.433**	.138
Mandated Placement or Other Placement > 1 week after 1st year		15.835*	1.268
Primary Caretaker Felt Child Needed Mental Health Treatment		1.351	.847

N= 88
* p< .05.   ** p< .01.   *** p<.001.

TABLE 32
Hurting Animals with Battelle Developmental Inventory Scales

Model 11: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	16.944**		
Pseudo r²	.105		
Battelle Personal Social Domain		.932*	.034
Gender		2.528*	.391
Primary Caretaker Felt Child Needed Mental Health Treatment		2.155*	.374
Model 12: Southwest Site			
Chi square	14.257**		
Pseudo r²	.090		
Battelle Cognitive Domain		.930	.044
Gender		2.426*	.394
Primary Caretaker Felt Child Needed Mental Health Treatment		2.172*	.376

N= 311 Model 11, N=309 Model 12
* p< .05.   ** p< .01.   *** p<.001.

CBCL T Scores for Aggressive Behavior and Attention Problem Subscales

The raw scores for aggressive behavior and attention problems show statistical

significance with the dependent variable of hurting animals at all three sites and are

separately included in the various site models. Thus it seems valuable to examine

whether or not the T scores for these subscales show any significance with the dependent

variable. This would indicate if children identified as hurting animals show any

differences from their site peers in the standardized scores for these subscales. For both

subscales a T score of 67 to 70 is considered the borderline clinical range or the lowest

score for the clinical range for statistical purposes. Scores above 70 are in the clinical

range. The T score has been shown to discriminate between referred and nonreferred

children, that is, between children without a significant problem in the particular area and

children referred for some type of treatment (Achenbach, 1991b). The T scores are

recoded into a dichotomous variable where 0 = T score below 67 and 1 = T score of 67 or

above. Results are presented by site.

South Site. The mean T score for the aggressive behavior subscale is 58.158. The

standard deviation is 9.692 and the variance is 93.934. Skewness is 1.512, slightly to the

right and kurtosis is 2.348. Scores can range from 50 to 100. The range here is 50 to 98

with 18.1 % of children scoring at 67 or above. Model 4 in Table 33 shows the results of

the binary logistic regression. Children who have T scores in the borderline clinical

range or above are statistically significantly more likely to hurt animals with 18.4% of

variance accounted for.

For the attention problems subscale the mean T score is 56.932 with variance of

66.954 and a standard deviation of 8.183. Skewness is 1.695, somewhat skewed to the

right and kurtosis is 3.66. The range of possible scores for this subscale is also 50 to 100.

Score at this site range from 50 to 97 with 12.2 % of children scoring in the borderline

clinical range or above. Model 5 in Table 34 shows the results of the logistic regression.

This regression is also statistically significant; children who show T scores in the

borderline clinical range or above are more likely to hurt animals as compared to their

peers. The variance accounted for is 12.1%. Gender is not significant in either of these

models.

TABLE 33
Hurting Animals with CBCL Aggression Subscale Score Borderline Clinical Cutoff

Model 4: South Site	Model Statistic	Odds Ratio	Standard Error
Chi square	17.164***		
Pseudo r²	.184		
Aggression Subscale T Score Dichotomous (< 67, 67 or above)		9.722***	.553

N= 221
* p< .05.   ** p< .01.   *** p<.001.

TABLE 34
Hurting Animals with CBCL Attention Subscale Score Borderline Clinical Cutoff

Model 5: South Site	Model Statistic	Odds Ratio	Standard Error
Chi square	11.081**		
Pseudo r²	.121		
Attention Subscale T Score Dichotomous (< 67, 67 or above)		7.194***	.556

N= 221
* p< .05.   ** p< .01.   *** p<.001.

Northwest Site. At this site the mean T score for the aggressive behavior subscale

is 58.884 with a standard deviation of 9.053 and a variance of 81.956. Kurtosis is .562

and the skewness is 1.056 within the range for a normal curve. The scores range from 50

to 88 with 19 % scoring in the borderline clinical range or above. Model 3 in Table 35

indicates that the T score for aggressive behavior is statistically significant with the

dependent variable; 5.8% of the variance is accounted for. Children at this site who have

T scores for aggressive behavior in the borderline clinical range or above are statistically

significantly more likely to hurt animals.

The mean T score for the attention problems subscale is 55.638. The standard deviation is 6.763 and the variance is 45.738 with skewness of 1.198, very slightly to the right and kurtosis of .717. Scores range from 50 to 82; 9.5% have scores of 67 or above. Model 4 in Table 36 shows the results of the binary logistic regression. The attention problems T score is statistically significant with 4.5 % of variance accounted for. Children who have elevated T scores for attention problems in the borderline clinical range or above are statistically significantly more likely to hurt animals Gender is not statistically significant when entered with either T score in a binary logistic regression.

Because only two other variables besides CBCL subscales and syndromes show statistical significance with hurting animals at this site they are examined with the T score findings. These two variables are whether or not a child is in regular day care and the quality of the neighborhood environment. Model 5 in Table 37 shows the results for these variables and the aggressive behavior T score. The model is statistically significant with 19.8% of variance accounted for. All of the independent variables are statistically significant such that children who are less likely to be in regular day care, more likely to live in lower quality neighborhoods and have aggressive behavior T scores in the borderline clinical range or above are more likely to hurt animals.

The results with these two variables and the T score for attention problems are similar: children who hurt animals are also more likely to have attention problem T scores in the borderline clinical range or above live in poorer quality neighborhoods and are less likely to be in regular day care. Model 6 in Table 38 shows the statistics for this model with 19.4% of variance explained.

TABLE 35
Hurting Animals with CBCL Aggression Subscale Score Borderline Clinical Cutoff

Model 3: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	6.811**		
Pseudo r²	.058		
Aggression Subscale T Score Dichotomous (< 67, 67 or above)		3.392**	.449

N= 232
* p< .05.   ** p< .01.   *** p<.001.

TABLE 36
Hurting Animals with CBCL Attention Subscale Score Borderline Clinical Cutoff

Model 4: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	5.287*		
Pseudo r²	.045		
Attention Subscale T Score Dichotomous (< 67, 67 or above)		3.770*	.536

N= 232
* p< .05.   ** p< .01.   *** p<.001.

TABLE 37
Hurting Animals with CBCL Aggression Subscale Score Borderline Clinical Cutoff

Model 5: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	23.842***		
Pseudo r²	.198		
Aggression Subscale T Score Dichotomous (< 67, 67 or above)		4.798**	.501
Regular Day Care or Not		.275**	.480
Quality of Neighborhood		1.101**	.031

N= 231
* p< .05.   ** p< .01.   *** p<.001.

TABLE 38
Hurting Animals with CBCL Attention Subscale Score Borderline Clinical Cutoff

Model 6: Northwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	23.325***		
Pseudo r²	.194		
Attention Subscale T Score Dichotomous (< 67, 67 or above)		6.679**	.599
Regular Day Care or Not		.311*	.466
Quality of Neighborhood		1.112**	.032

N= 231
* p< .05.   ** p< .01.   *** p<.001.

Southwest Site. The T scores for aggressive behavior and attention problems are examined separately and in models with gender as gender has consistently shown significance with the dependent variable at this site. The mean score for the aggressive behavior T score is 58.770. The standard deviation is 9.632 and the variance is 92.766 with skewness of 1.318, somewhat skewed to the right and kurtosis of 1.683. The range of scores is 50 to 96 with 21.5% of children attaining scores in the borderline clinical range or above. Results for the binary logistic regression for T scores for aggressive behavior are: χ^2 (1, $\underline{N}$ = 317) = 44.917, $\underline{p}$ < .001. The pseudo r^2 = .26, odds ratio = 1.119, $\underline{p}$ < .001. Thus children with have T scores on this subscale in the borderline clinical range or above are statistically significantly more likely to hurt animals.

For the attention problems subscale T scores the mean is 56.912 with a standard deviation of 8.276 and variance of 68.486. Skewness is .151, a symmetric distribution and kurtosis is 2.498. The scores range from 50 to 97 with 12.3 % of scores falling in the borderline clinical range or above. The binary logistic regression shows that this variable is statistically significant with the dependent variable as well: χ^2 (1, $\underline{N}$ = 317) = 12.785, $\underline{p}$ < .001. The pseudo r^2 = .078, odds ratio = 4.704, $\underline{p}$ < .001. Children who have T scores on the attention problems subscale in the borderline clinical range or above are statistically significantly more likely to hurt animals.

Model 13 in Table 39 shows the results when gender is controlled for with aggressive behavior T scores. Both variables are statistically significant with 29.4% of variance explained. Boys with T scores for aggressive behavior in the borderline clinical range or above are statistically significantly more likely to hurt animals. Model 14 in Table 40 indicates that gender is also statistically significant when entered with attention

problems T scores such that boys who have T scores in the borderline clinical range or above on this subscale are more likely to hurt animals; variance is 12.6%.

Although gender is consistently statistically significant at the SW site chi square tests are performed examining whether or not girls who are reported as having hurt animals show differences from the other girls in the sample. Chi square is utilized as missing data will not allow for splitting the logistic regression by gender The results for both CBCL subscale T scores are statistically significant indicating that while boys are more likely than girls to hurt animals, girls who do so are also experiencing heightened difficulty. The results of the chi square test for aggressive behavior is as follows: χ^2 (1, $\underline{N} = 168) = 23.043$, $\underline{p} < .001$. The finding for attention problems is also significant: χ^2 (1, $\underline{N} = 168) = 7.366$, $\underline{p} < .01$.

TABLE 39
Hurting Animals with CBCL Aggression T Score Subscale Borderline Clinical Cutoff

Model 13: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	51.163***		
Pseudo r²	.294		
Aggression Subscale T Score Dichotomous (< 67, 67 or above)		12.311***	.405
Gender		2.793**	.415

$\underline{N}= 316$
* p< .05.   ** p< .01.   *** p<.001.

TABLE 40
Hurting Animals with Attention T Score Subscale Borderline Clinical Cutoff

Model 14: Southwest Site	Model Statistic	Odds Ratio	Standard Error
Chi square	20.840***		
Pseudo r²	.126		
Attention Problems T Score Dichotomous (< 67, 67 or above)		4.716***	.418
Gender		2.918**	.391

N= 316
* p< .05.   ** p< .01.   *** p<.001.

This concludes the presentation of the statistical analyses of the LONGSCAN data examining the relationship of the dependent variable of children hurting animals as reported by the primary caretaker and measured by item # 15 on the CBCL. Demographic variables, CBCL subscale scores and other variables as suggested by the literature on animal abuse have been explored. These include caretaker related variables such as level of depression, risk for alcoholism and empathy towards the child. Child related variables investigated are developmental status as measured by the BDI, day care history, mental health treatment and foster care history for the SW site only. Environmental variables regarding home and neighborhood conditions are also considered. The implications of the statistical findings will be discussed in the next chapter.

Chapter IV: Discussion

Results from the statistical analyses of the three sites will be discussed in this section. Associations between the dependent variable, hurting animals, and some of the hypothesized correlates were found at each site. Significant findings were also demonstrated for some of the research questions. These findings will be framed in the contexts of the theoretical frame works used: bioecological theory, social learning theory, attachment and trauma. Although the three sites are not directly comparable, there are some commonalities in the findings particularly in regards to aggressive behavior and attention problems. Directions for future research as well as implications for prevention and treatment will be presented.

Of the five hypotheses in this study only one was supported at all three sites. This hypothesis stated that hurting animals will show relationships with aggressive behavior, attention problems and delinquent behavior. Delinquent behavior did not show sufficient reliability possibly because most of the activities associated with delinquency do not apply to the ages of the children in the sample. Reliabilities "should not be below .80 for widely used scales" (Carmines & Zeller, 1979, p.51). The highest reliability for the delinquency scale was .734 at the South site. Attention problems reliabilities ranged from .721 to .798. All the reliabilities for the aggressive behavior scale were above .80. The hypothesis that boys rather than girls will be more likely to hurt animals was only found to hold at the Southwest site; the other two sites had no gender effect. Related to this, externalizing behaviors while significant at all sites only showed boys more likely than girls to hurt animals at the Southwest site. Internalizing behaviors also were significant at all three sites in relation to hurting animals. It was hypothesized that girls

186

who hurt animals would show higher levels of internalizing behaviors but this was not found. The only gender difference was at the Southwest site where boys who hurt animals had higher levels of internalizing behaviors. The final hypothesis that physical abuse would show a relationship to the behavior of hurting animals was not supported at any of the sites. Even at the Southwest site despite the large number of physical abuse allegations, no statistically significant relationship is shown. It is possible that the method of recoding the maltreatment allegations into a dichotomous variable of physical abuse and neglect affected the outcome by treating physical abuse and neglect as qualitatively different. In addition, analyses including the physical or other abuse variable indicate that while it remains not significant, at times other abuse is more likely than physical abuse. Probably all types of maltreatment including neglect should be examined in future research on the relationship between child maltreatment and hurting animals.

Although each site represents a different sample with varying levels of risk it is compelling that the single strongest correlate of the behavior of hurting animals is the aggressive behavior scale of the CBCL across the sites. Thus it seems that as judged by their primary caretakers these children are behaving aggressively. According to Gilliom and Shaw (2004) these kinds of externalizing behaviors should decline after age two, but the children who hurt animals at all three sites are exhibiting elevated levels of aggressive behavior at approximate ages of 4-to-5 years.

Temperament may be one reason why these children are at risk for hurting animals. Children with temperaments characterized by high arousal thresholds, low fearfulness and high activity levels in the presence of certain risk factors may develop and maintain high levels of aggressive behaviors (Kochanska, 1993; Young, Fox & Zahn-

Waxler, 1999; Gilliom & Shaw, 2004).   There can also be concomitant problems with attention as demonstrated at all three sites by the statistically significant relationship between attention problems and hurting animals although the reliabilities of this scale are not as robust. It is not possible to state definitively if these children showed a difficult temperament in infancy and as toddlers. Although an infant characteristics questionnaire was administered, it was only done at the Northwest and Southwest sites. Just 76 primary caretakers completed it at the Northwest site, and roughly half of the caretakers completed it at the Southwest site. In addition, at the Southwest site it was only administered at the age 4 interview when many of the children were with caretakers who may have had incomplete knowledge of the children's infant dispositions. Logistic regressions did not demonstrate any relationship between infant temperament and hurting animals. However, the level of difficulty that these children are experiencing with externalizing behaviors suggests that they may have temperaments that predispose them to difficulties with acting out behaviors in the presence of certain risk factors.

Risk factors for the South site include both parental issues and approaches to parenting. Primary caretakers of children who hurt animals at this site had higher levels of depressive symptoms and a trend indicating alcohol problems. These caretakers also demonstrated a trend towards less empathy for their children. If parents do not demonstrate empathy towards their children, this may impact how children interact with others including animals. In addition, the primary caretakers of aggressive children showed age inappropriate expectations. This would include such expectations as young children being able to adequately feed, bathe and dress themselves at an early age and provide emotional support to primary caretakers. Difficulties between children and

parents will continue and may intensify as envisioned by Gilliom and Shaw (2004, p.329). There seems to be a disparity between what these primary caretakers expect from their children and what the children are able to manage. The children turn to disruptive and acting out behaviors that include hurting animals. This scenario touches on bioecological theory, social learning theory and attachment issues (Bandura & Walters, 1963; James, 1994; Bronfenbrenner & Morris, 1998). The reciprocal process between caregiver and child is not enhancing competencies; the children may be learning inappropriate behaviors and may have avoidant attachments with their caregivers. This type of attachment is a risk factor for excessive aggression and lack of empathy (Ainsworth, Blehar, Walters & Wall, 1978 cited in Romer Whitten, 1994). The situation of these children is comparable to the research findings of Walker and Cheng (2007) in that maternal empathy and stress can result in behavior problems for preschool age children. It must be noted that the economic circumstances of many of these families are bleak. The modal income is less than $5,000 per year. Poverty is a stressor in and of itself that interacts with all the other factors that lead to less than optimal outcomes for these children. With regard to demographic variables, children who are not with their biological mothers and whose caretakers have lower incomes are more likely to hurt animals. It is possible that their primary caretakers have limited resources for them and the children, in turn, want to be with their mothers.

At the Northwest site the most significant correlates with adequate reliabilities for hurting animals are aggressive behavior and attention problems in conjunction with poorer neighborhood quality and nonparticipation in day care. Children not in day care at the South site were also more likely to hurt animals. Involvement in some type of day

care or preschool program seems to bestow a protective effect. This may be due to the structure and activities designed to enhance competencies and address behavior problems as well as the increased monitoring such settings provide. It could also be due to the time out of the particular neighborhood. None of the literature examined for this study specifically addressed the issue of day care or preschool attendance in relation to hurting animals. One reason may be that most studies looked at school age children or adolescents. This may be an overlooked area in regard to young children identified as hurting animals.

The children who hurt animals at the Northwest site show fewer differences from their site peers than children who hurt animals at the other two sites. This is the only site where the social problems scale of the CBCL is not statistically significant with hurting animals. There are also no developmental delays between children who hurt animals and the other children at this site as assessed by the BDI. Economically, the situation of these families is only marginally better than at the South site, with a modal income between $5,001 and $10,000 per year. No relationships are demonstrated between parenting attitudes, depression or alcohol use and hurting animals. Parents of children who hurt animals have fewer children and less education and may lack both internal and external resources to deal with high energy, impulsive children. Parents are struggling with their behaviors which may impact the parent-child relationship. These children are also at risk for maltreatment which can cause traumatic reactions and impact the development of empathy. This sample was recruited from a larger group reported to CPS for possible child maltreatment; 60% of the reports were subsequently substantiated (LONGSCAN Assessments 0-4 NDACAN Dataset Number 87 Users Guide, 2001, P. 15).

The Southwest site is the only site to show consistent gender effects. Boys are more likely than girls to hurt animals. Boys also are more likely than girls to show elevated levels on the indices examined in relation to the dependent variable, such as externalizing and internalizing behaviors and foster care placement. Girls who hurt animals at this site are functioning less well than their female peers, however. The fact that the other two sites did not demonstrate a gender differential may be due to the low numbers involved at the sites. The children at the Southwest site, based on the information provided in the data, seem to have the highest risk as a group for maltreatment. All these children experienced an initial foster placement in infancy. It is possible that the externalizing behaviors of these boys are at a level of intensity that places them at greater risk for further maltreatment and removal. This is only a partial explanation, as not all children who hurt animals experienced additional placements.

Another possible explanation for the gender differential at the Southwest site is that boys are having more serious social difficulties than girls as measured by the CBCL scale for social problems. While risk for hurting animals may not be evenly distributed between males and females, the mixed findings at the three sites indicate that girls should be included in any research on this issue. Dadds, Whiting and Hawes (2006) found that externalizing behaviors were not a factor in the cruelty to animals demonstrated by girls ages 6-to-13 although callous unemotional traits were associated with their animal cruelty behavior. As girls displayed elevated levels of externalizing behaviors at all three sites it may be that their externalizing behaviors decline when they reach school age based on female peer expectations. Both boys and girls who hurt animals at all three sites also showed statistically significant levels of internalizing behaviors as compared to their site

peers. The moderate positive correlations between externalizing and internalizing behaviors (South, .643; Northwest, .605; Southwest, .605) indicate they were experiencing substantial difficulty in multiple areas of functioning at preschool age.

None of the variables related to parenting or parental behaviors is significant at the Southwest site, possibly due to the large number of foster and adoptive parents. Day care variables are also not significant. Presumably this may be due to more stable home environments in foster and adoptive settings, or these children have too much difficulty in day care or preschool and primary caretakers choose to keep them home and work on behavioral issues there. Of the 36 children identified an hurting animals, 22 are or have been in day care, but the reasons for involvement versus non-involvement are not specified.

In terms of child developmental indices, the South and Southwest site children who hurt animals lagged behind their site peers in personal-social development and adaptive behavior. This finding provides some support for Ascione's (2005) hypothesis that hurting animals may be related to developmental issues that in conjunction with curiosity and exploration may lead to this behavior. Personal-social skills include abilities to describe feelings, accept responsibility and utilize adult help. It can be seen that poor functioning in this sphere would contribute to difficult social relationships. These children may not ask for adult help because they do not believe it will be forthcoming. An inability to express feelings verbally may exacerbate acting out behaviors. Adaptive behavior looks at age appropriate daily living skills; it is possible that these have not been adequately modeled or taught. If children who are hurting animals receive support in how to interact with them the behavior may be extinguished. However, the stronger

relationship of aggressive behavior to hurting animals indicates this may be more of a

factor although aggression may interact with personal-social and adaptive deficits in

hurting animals. If this is the case then extinguishing the behavior may be a more

difficult process. Personal-social and adaptive skills can be enhanced; this may help with

the aggressive behavior or the aggression may persist. In the latter case this may be

indicative of more serious underlying issues such as trauma. There can also be

effects on the development of empathy. According to Hastings, Zahn-Waxler, Robinson,

Usher and Bridges (2000) preschool age children regardless of behavioral problems did

not show statistically significant differences in their concern for others (p.532). However

from ages 5-to-7 differences in empathy did develop. Empathy moderated the course of

externalizing problems such that those with low concern for others experienced higher

levels of externalizing behaviors at age 7 (Hastings, Zahn-Waxler, Robinson, Usher &

Bridges, 2000). If empathy is in the process of development over the age range of 5-to-7-

years children already experiencing heightened levels of aggression may be at risk for

continued behavioral problems and a concurrent failure of empathy development. The

children identified as hurting animals would seem to be at risk for this trajectory.

There is no explicit measure of empathy in the data used for this analysis.

However, there are associations at each of the sites between hurting animals and bullying

or meanness to others. Gender is also significant at the Southwest site, with boys who

bully or are mean more likely to hurt animals than girls who bully. While this is an

indirect and incomplete measure, it does indicate that these children show some degree of

disregard for human and animals. It seems the difficulties they are experiencing affect

many aspects of their relations with others and are not wholly directed toward animals.

The importance of empathy and the promotion of development for concern for others cannot be overstated. The lack of behavioral control combined with callous unemotional traits which imply the absence of empathy can lead to conduct problems and antisocial behavior (Dadds, Whiting & Hawes, 2006). The presence of empathy may exert a protective effect: "fostering young children's attention to and concern for the needs of others may be an effective avenue of intervention for improving the developmental trajectories of children with early-appearing externalizing problems" (Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000, p.542). The children at all three sites seem to be struggling with behavioral issues that place them at risk for continued difficulty in the areas of externalizing problems and stunted empathy development.

Foster care placement was only examined at the Southwest site as only that site had sufficient numbers of children placed for analysis. Boys with aggressive behavior in a mandated placement after age one are more likely to hurt animals. Boys and girls with attention problems in a mandated placement are more likely to hurt animals. It is not possible to determine if placement preceded aggressive behavior, attention problems and hurting animals or some other combination of these factors. All the children at the Southwest site experienced early foster care or relative placement (that is, prior to age one) but a subset of children continued to experience placements after their first year. Placement may have exacerbated these behaviors with risk more pronounced for children who hurt animals particularly if the children were also experiencing symptoms of post traumatic stress disorder. None of the extant research looked specifically at the issue of hurting animals in relation to foster placement so this finding would need to be replicated to determine if it is a valid issue.

From a bioecological perspective separation from the mother or other primary caretaker can disrupt the developing relationship with the child and affect his or her ability to develop the necessary competencies to reach maximum potential (Bronfenbrenner & Morris, 1998). Such separations can also affect a child's ability to attach appropriately to the mother or to someone new if the mother is no longer an option. Even if mandated placement is necessary to ensure child safety, placement can be traumatic and may be an additional trauma subsequent to other traumatic experiences. It seems that for the subset of children experiencing additional placement there is an increased risk for hurting animals, particularly those who are boys and have elevated levels of aggressive behavior who were almost eight times more likely to be placed (p. < .10).

The strongest correlate across the sites for hurting animals is aggressive behavior. There are 20 items in the aggressive behavior scale of the CBCL:

1. Argues a lot
2. Brags and boasts
3. Bullies or is mean to others
4. Demands a lot of attention
5. Destroys his or her own things
6. Destroys other's belongings
7. Disobedient at home
8. Disobedient at school
9. Easily jealous
10. Gets in many fights
11. Physically attacks people
12. Screams a lot
13. Shows off or clowns
14. Stubborn, sullen , irritable
15. Sudden mood or feeling changes
16. Talks too much
17. Teases a lot
18. Temper tantrums
19. Threatens people
20. Unusually loud   (Achenbach, 1991b)

 These behaviors and hurting animals are indicative of difficulty in managing emotions

and behavior and in conjunction with the statistically significant findings for attention

problems, controlling impulses. Children who hurt animals are very aggressive, and

hurting animals may be just one behavioral expression of this tendency. The pathway to

aggression may involve a temperamental predisposition to high arousal and fearlessness

but is impacted by a multiplicity of factors. Maltreatment, foster care, parenting practices,

parental stress and economic status are all implicated, although not all these factors

demonstrated statistical significance. The impairment of empathy development in these

children may be crucial in terms of ongoing risk for behavioral and conduct problems. It

may be that children with this temperament are especially at risk for hurting animals due

to the traumas they may have experienced such as parental abuse and neglect and foster

care placement. The consequences of trauma include unrelenting fear, affect

dysregulation and avoidance of intimacy. Increased acting out behaviors may result from

trying to deal with the anxiety caused by the trauma as well as reenacting it (James,

1994). For the children who hurt animals at all the sites in particular those of the

Southwest site this could play a part in their difficulties. The children from the

Southwest site who were adopted may be having attachment problems as well.

        That being said, poor outcomes are not inevitable. Involvement in day care or

preschool seems to be protective and many of the children who hurt animals identified as

needing mental health treatment were receiving it at some point. Identification of this

particular issue and others in early childhood increases the probability that more optimal

outcomes can be achieved. Implications for treatment, prevention and further research will be discussed in the following section.

<div align="center">Treatment and Prevention</div>

Two approaches to treatment and prevention suggest themselves based on the findings of this research on correlates of hurting animals in young children. One approach targets the specific behavior of hurting animals and would focus on extinguishing the behavior, dealing with past incidents and promoting a more humane relationship with animals. The child must first be identified as having hurt animals for this approach. A second method would focus on the aggressive behavior some children exhibit that puts them at risk for a variety of problems including hurting animals. Treatment would seek to decrease aggression and improve emotional regulation and impulse control. The development of empathic concern should be a specific goal in both instances; it will promote feelings of self efficacy and self-mastery as behavioral control improves, as well as increasing concern for others. Both approaches seem necessary in order to maximize the possibilities for reaching the many children at risk.

Young children in particular learn by imitation and then practice of new skills. Bandura and Walters (1963) provide extensive evidence of this in their research with younger children. Thus role playing, rehearsing and practicing in real life situations such as a day care setting may be needed to help young children change their behaviors. Ideally, asking questions about children's relationships with animals, including whether or not they have ever hurt them, should become part of clinical assessments just as inquiries about traumas such as sexual abuse and witnessing domestic violence are. This is particularly important if children are exhibiting aggressive behaviors.

<div align="center">197</div>

There are some assessments and treatment protocols developed specifically for children identified as hurting animals. The Children and Animals [Cruelty to Animals] Assessment Instrument (CAAI) is a semi-structured interview for children over four (Ascione, Thompson & Black, 1997). It assesses multiple dimensions including severity, frequency, duration and empathy. Other factors examined are how recent the acts were, whether they were carried out alone or with others, attempts at concealment and the child's level of connection to the animal or animals harmed. The CAAI, given its length and level of detail was designed for research purposes. Field testing with a sample of 18 children of various ages indicated 44% had scores in the borderline clinical range or above for the aggressive behavior scale of the CBCL.

Dadds, Whiting, Bunn, Fraser, Charlson and Pirola-Merlo (2004) developed the Cruelty to Animals Inventory (CAI) based on the CAAI (Ascione, Thompson & Black, 1997). The CAI is much shorter with nine questions plus one open-ended question and can be used to see if the behavior of hurting animals has occurred and if it has, collects more detailed information. There are child and parent versions; some combination of each can be used with children from 3-to-13 years old. Testing of the instrument showed a high level of agreement between parent and child reports of children's behavior toward animals. Boys only were also observed in interaction with a mouse carrying out specific tasks such as feeding and playing with it. Parent and child reports were predictive of how the boys would interact with the mouse. Although the researchers note possible methodological problems in how observers rated cruel versus nurturing behavior with the mouse, they state that "if cruelty does reliably vary with nurturing behavior, the latter may serve as a more practical target for the development of empathic positive skills in a

child and remediation of aggressive, cruel behavior" (Dadds, Whiting, Bunn, Fraser, Charlson & Pirola-Merlo, 2004, p. 331).

Both Boat (1999) and Guymer, Mellor, Luk and Pearse (2001) have also developed screening tools for assessing children for animal abuse. The Boat Inventory on Animal-Related Experiences (BIARE, Boat, 1999) focuses not just on animal cruelty by a child or adolescent but on pet ownership, loss of pets, witnessing animal cruelty and fears about animals. It consists of 20 open and closed-ended questions establishing an individual's feelings about and relationships with animals. The BIARE has not been standardized or normed but would be useful in a therapeutic setting in providing direction for treatment (Boat, 1999, p.88).

The Children's Attitudes and Behaviors Towards Animals (CABTA, Guymer, Mellor, Luk & Pearse, 2001) contains 24 questions in three parts. The first collects demographic and pet ownership data. The second has questions about attitudes towards and relationships with animals. The final section asks specifically about animal cruelty. Like the BIARE (Boat, 1999), the CABTA seeks to obtain information about the spectrum of children's relationships with animals. Field testing of the CABTA was carried out with elementary school children in Australia. Their parents completed the questionnaires. Although return rates for questionnaires were low (26%), the CABTA showed high test-retest reliability and good construct validity. Factor analysis yielded two factors labeled Typical Cruelty and Malicious Cruelty. The item, "intention to harm" loaded on both factors and was included on both. The Typical Cruelty factor seems to measure the more moderate levels of harming animals while the Malicious Cruelty factor covers more serious harm. The authors suggest that the CABTA has relevance as a

screening and assessment tool indicating when further assessment and treatment may be warranted. More work needs to be done to determine appropriate age points for clinical consideration but " the outcome and prognosis for the individuals may be affected if cruelty to animals can be detected earlier and more appropriate treatment provided" (Guymer, Mellor, Luk & Pearse, 2001, p.1063).

Lewchanin and Zimmerman (2000) have developed a comprehensive manual for the clinical assessment of juvenile animal cruelty. In addition to exploring the specifics of animal cruelty, it looks at readiness for change, empathy, motivation and resiliency. It also examines the individual's history in regards to abuse, neglect and trauma. Given its length and the time required to complete it adequately, this protocol would be most useful when a child or adolescent has been already identified as involved in some type of animal abuse.

Aside from tools for screening and assessment of animal cruelty behavior, there are more global approaches to the issue. Haden and Scarpa (2005) cite the AniCare Child program developed together by Psychologists for the Ethical Treatment of Animals (PSYETA) and the Doris Day Animal Foundation (2005). AniCare Child takes a cognitive behavioral approach in treating both children who abuse animals and children who have witnessed animal abuse. Responsibility for behavior, appropriate expression of emotion and positive connections to animals are addressed. There is no available research on outcomes or efficacy as of yet (Haden & Scarpa, 2005, p.30).

DeGrave (1999) and her colleague, Lynn Derr developed People and Animals Learning (PAL) in 1993 which puts high risk inner city children ages 10-to-13 in a three week training program with animal shelter dogs and orphaned wild animals. The

children have not necessarily hurt animals. The program seeks to develop empathy for people and animals, provide humane education training and enhance self-efficacy and responsibility. No outcome data are provided beyond anecdotal reports but PAL is a promising approach to the specific issue of animal cruelty prevention as well as the many issues faced by children at risk.

Another broad approach is education in a school setting. Ascione (1992) conducted a study of a year long humane education curriculum with first, second, fourth and fifth grade children in Utah. The focus was on children's attitudes toward animals; also "the generalization of such attitudes to human empathy" (Ascione, 1992, p. 177). The study utilized a pretest-posttest design with random assignment of classrooms to an experimental or control group. The curriculum focuses on respect and compassion for all living creatures, provision of the necessary knowledge to behave accordingly and the development of the responsibility to do so. Teachers in the experimental group were to devote 40 hours to the curriculum over the course of the school year. Most adhered to the 40 hour requirement although the inclusion by some control group teachers of significant amounts of humane education in their classes may have affected the results.

The Primary Attitude Scale (PAS, Ascione, 1988a) and the Intermediate Attitude Scale (IAS, Ascione, 1988b) assessed attitudes towards animals for the younger and older children, respectively, in experimental and control groups. The Empathy Index (Bryant, 1982) was utilized as a measure of empathy. For first and second grade children there was no statistically significant effect on attitudes toward animals from the curriculum. The same is true for the Empathy Index although there was a gender effect with girls showing more empathy than boys. The children in the first grade experimental classes

did show positive change with higher scores and more change than the control group first

grade children. The fourth and fifth grade children did show statistically significant

effects for treatment and gender with most of the difference in attitude change

contributed by fourth grade experimental group children. Empathy was statistically

significant with a gender effect again for girls. Ascione (1992) suggests that the

primarily rural and suburban population may have already had positive attitudes toward

animals such that scores were initially so high as to make differences between groups

difficult to detect as well as the confounding factor of significant amounts of humane

education in some of the control group classes. In terms of empathy, Pearson correlations

between the Empathy Index scores and the PAS and IAS scores for the entire sample

prior to the administration of the curriculum found positive, statistically significant

results. According to Ascione "these correlations provide evidence for a clear yet

nonredundant relation between children's attitudes about the treatment of companion and

noncompanion animals and their human directed empathy" (1992, p.187). He proposes

that humane education curricula taught in every other grade may be a cost-effective

approach to instilling and maintaining positive attitudes toward animals with concomitant

effects on empathy.

For children in the preschool age group such as those in the site samples, a model

that can be utilized in the day care or preschool setting and at home is most beneficial.

The Center on the Social and Emotional Foundations of Early Learning (CSEFEL,

www.vanderbilt.edu/csefel, 2009) provides a social emotional curriculum designed to

promote social skills, emotional regulation and cooperative behavior among children.

Positive relationships among staff, children and their families form the base followed by

classroom preventive practices and a physical environment that encourages safe exploration and learning. Modeling of appropriate behavior by staff as well as recognition and reinforcement of positive behavior exhibited by children are stressed.

For children who present with challenging behaviors, there are individualized interventions such as a functional behavioral assessment by a clinician-consultant to identify antecedents to challenging behavior and corrective action. This results in a behavior plan for the child. Parents are incorporated into the process as the experts on their child and so that continuity between home and day care setting can maximize the opportunity for positive change. Another goal is to prevent children essentially failing out of day care and moving from center to center which hinders positive development and may increase the level of problem behaviors.

CSEFEL provides reproducible stories and teaching materials and encourages their use free of charge. Although there are many curricula available for social emotional development, CSEFEL is continually updated based on current research and seeks to include all important players in a child's life when behavioral difficulties arise. As non-involvement in day care seems to increase the risk for hurting animals, participation may provide some protection particularly in a high quality setting. Children who hurt animals would be more likely to present with challenging behaviors. How these behaviors are dealt with may be crucial for their ongoing development.

Support for parents is also critical in regards to aggressive behavior and other behavioral issues in children. The results of the data analysis for the South Site indicate depression and alcohol use by primary caretakers have some relationship to risk for hurting animals. In addition the lack of empathy and the inappropriate expectations of

aggressive children in particular shown by primary caretakers at this site seem to increase the risk for hurting animals. Although no relationship between physical abuse and hurting animals is demonstrated, the higher risk for mandated foster placements at the Southwest Site by children who hurt animals seems to indicate that some relationship does exist. The trauma of placement and separation from biological parents to whom children may have an attachment regardless of abuse and neglect issues requires further exploration. Gilliom and Shaw write that "clinicians must address child characteristics, parenting style, and their goodness of fit (or lack thereof) to successfully reduce externalizing and internalizing problems" (2004, p.330). Parenting practices need to take into account the particular temperament of the child in order to be effective. Parenting groups that discuss the differences in temperament that children exhibit and provide guidance on what may work best for a given temperament may be one approach to this issue.

As screening and assessment tools are available for establishing the presence of animal abuse or hurting animals the next step would be to increase their utilization. One possible approach is to screen children demonstrating high levels of aggressive behavior and attention difficulties based on the findings of this dissertation especially if the child has experienced some trauma. Increasing awareness of the issue in schools of social work and among practicing clinicians and child protective workers would help to identify children struggling with this issue. Early identification would enhance the possibility that the behavior can be treated and extinguished before it and other issues further hinder the development of empathy and other competencies.

Limitations

There are certain limitations to this study. The measure of hurting animals is one item from the CBCL that provides no additional information such as frequency, severity, context, and the particular behaviors engaged in by the child. There is also no information on the child's reaction to the incident or incidents or what treatment or other interventions may have been provided. The samples were not randomly selected by NDACAN but were chosen from groups considered to be at various levels of risk (NDACAN Dataset Number 87 Users Guide, 2001). Thus the results cannot be generalized to other populations. It is possible that less high risk samples would not show similar levels of hurting animals or the associated behavioral issues. The numbers of children who hurt animals at each site were low and this may have affected the results of the data analysis. The study does demonstrate that a range of concerning behaviors principally aggression, and parental issues correlate with hurting animals in three samples of preschool age children such that this behavior may have its origin in early childhood.

Conclusion

This discussion has examined the results of the data analysis of the LONGSCAN Dataset for Assessments 0-4 (NDACAN, Dataset number 87, 2001) on correlates of hurting animals by young children. The findings indicate that externalizing behaviors, principally aggression as measured by the scales of the CBCL, are correlated with the behavior of hurting animals. Attention problems also are related to increased risk for hurting animals. The children who hurt animals at each of the three sites considered are functioning less well than their site peers in these and other areas such as social skills and developmental indices although results vary by site. Primary caretaker behaviors are also

examined. The South Site shows relationships between depression and risk for alcohol abuse by primary caretakers and children's risk for hurting animals. Lower parental empathy and age inappropriate expectations for aggressive children are also risk factors for this site. The Northwest Site demonstrated a relationship between hurting animals and poorer quality neighborhoods. Both of these sites showed non-participation in day care to be a risk factor. The Southwest Site indicates a higher risk for children who hurt animals to experience mandated foster placements.

The only hypothesis to hold for all sites is that proposing a relationship between aggressive behavior, attention problems and delinquent behavior as measured by the CBCL scales and the behavior of hurting animals. The hypothesis for gender effects is only shown at the Southwest Site where boys are more likely than girls to hurt animals. The hypotheses regarding externalizing and internalizing behaviors also are not supported although they are significant with the dependent variable at all three sites. The Southwest Site shows boys with externalizing and internalizing behaviors as more likely to hurt animals while the other two sites show no gender effects. The hypothesis that physical abuse will show a relationship with the dependent variable is not supported.

The findings do indicate that hurting animals seems to be related to other behavioral difficulties. The probability that the development of empathy is also negatively impacted is of concern for the optimal development of these children. As the data are taken from the first wave of a longitudinal study, analysis of such data as the children age is indicated to see if the difficulties associated with the behavior of hurting animals persist. Research with other populations also is necessary to see if these findings have applicability beyond the children in these samples.

Chapter V: Summary

This study consists of a secondary data analysis of the first wave of a longitudinal research initiative conducted by NDACAN on child abuse and neglect (LONGSCAN Dataset for Assessments 0-4, NDACAN, Dataset number 87, 2001). Children in the first wave are approximately ages 4-to-5-years. The purpose of the study is to examine the incidence of hurting animals in sample not selected on this basis in order to determine correlates of hurting animals by young children. There is a growing literature and research base on the topic of childhood animal abuse but no analysis of the behavior in children this young has been located. Some researchers have hypothesized that in children this young hurting animals is a behavior that arises out of curiosity, exploration and inexperience; the analysis looks at developmental indices as well as behaviors that have been associated with the behavior of hurting animals in older children (Ascione, 2005). If associations can be demonstrated between hurting animals in early childhood, challenging behaviors and other correlates identified in the literature then possibly this is a behavior that has an earlier onset than previously thought. This has implications for treatment, prevention and child welfare practice.

The study has five hypotheses and five research questions. The hypotheses are: males will exhibit the behavior more frequently than females; males who hurt animals will show more externalizing behaviors than females; females will show more internalizing behaviors than males; aggressive and delinquent behavior and attention problems will show statistically significant relationships with hurting animals; physical abuse will show a statistically significant relationship with hurting animals. The research questions examine demographic factors associated with hurting animals as well as foster

care placement and attitudes towards parenting. Parent and child characteristics and behaviors such as maternal depression, day care participation and the impact of home and neighborhood environments also are included.

The area of childhood animal abuse is one that deserves more attention in order to provide direction for policy and practice. Much information has been disseminated but the empirical base needs to be expanded (Bell, 2001; Faver & Strand, 2003; Piper& Myers, 2006). Animal abuse has been linked to exposure to domestic violence, physical abuse, corporal punishment and risk for conduct problems and antisocial behavior (Flynn, 1999; Ascione, Friedrich, Heath & Hayashi, 2003; Currie, 2006). Researchers such as Dadds, Whiting and Hawes (2006) have suggested that cruelty to animals by children may be related to callous unemotional traits and a corresponding lack of empathy. Problems such as oppositional behavior and aggression have been linked to childhood animal cruelty as well as difficulties in family functioning (Luk, Staiger, Wong & Mathai, 1999).

The theoretical bases for this study are the bioecological model (Bronfenbrenner & Morris, 1998), social learning theory (Bandura & Walters, 1963) and attachment theory (Bowlby, 1969). The bioecological model looks at the child in his or her environment as well as the relationship between the young child and the primary caregiver. The process between caregiver and child can enhance or hinder optimal development. In social learning theory children learn from models which, especially in early childhood, again include primary caretakers and then imitate and generalize these behaviors to new situations. The child can learn both prosocial and deviant behaviors in this manner. Attachment between primary caregiver and child if it does not go well can

lead to difficulties with aggression, social development and the formation of additional secure attachments. The impact of trauma, development of empathy and the possible consequences of a high arousal, fearless temperament are also considered in relation to hurting animals.

Three of the five sites were examined in the data analysis: the South, the Northwest and the Southwest. Incidence of hurting animals is 7.2%, 10.8% and 11.4% respectively. The data analysis employed the block method of binary logistic regression with hurting animals as the dependent variable. Hurting animals was measured by item 15 on the CBCL (Achenbach, 1991b). In addition to the scales of the CBCL, the AAPI (Bavolek, 1984), the BDI (Newborg, Stock, Wnek, Guidubaldi & Svinicki, 1984), the CESD (Radloff, 1977) and the CAGE (Ewing & Rouse, 1970; Ewing, 1984) were utilized as independent variables. Scales developed specifically for the LONGSCAN study were also used as independent variables (NDACAN, Dataset number 87, 2001).

Results indicated that aggressive behavior was the strongest correlate with the dependent variable. Attention problems and delinquent behavior were also statistically significant although the latter had low reliability. This was the only hypothesis to hold across all the sites. There was no statistically significant effect with physical abuse and gender was only significant at the Southwest site with boys more likely to hurt animals than girls. Externalizing and internalizing behaviors were significant at all three sites for both genders; there was a gender effect for boys at the Southwest site only.

Low parental empathy approached significance at the South site with parental depression; risk for alcohol abuse and inappropriate expectations for aggressive children all being statistically significant. Neighborhood quality was significant at the Northwest

site. Both of these sites showed lack of participation in daycare associated with hurting animals while primary caregivers at the South and Southwest sites who felt their children needed mental health help had children more likely to hurt animals. For the Southwest site members of the subset of children in mandated foster placements after age one were more likely to hurt animals.

Thus aggressive children in particular were more likely to hurt animals impacted variably by parental behaviors and attitudes, foster care placement, neighborhood quality and non-participation in day care. While no direct measure of temperament was available at all the sites and the information that was available was incomplete, their behaviors provide indirect evidence that these children were struggling with emotional regulation, impulsivity and aggression. There was a relationship between hurting animals and bullying and meanness towards others indicative of problems in the development of empathy. These children seem to be at risk for continued difficulty without intervention.

Treatment and prevention implications include assessment of any incidents of hurting animals particularly with children showing heightened aggression. Tools for assessment and treatment are available and some have been empirically tested. Work with parents on how to capitalize on the strengths of children with this temperament is recommended. The approach with the most potential impact is one which seeks to promote and enhance the development of empathy and concern for all living beings. This approach can be employed in day care and preschool settings and can incorporate parents as well.

Limitations of the study include the use of a single question as a measure of hurting animals and the inability to generalize the findings beyond this sample. Research

with other samples is indicated as well as further investigation with the later waves of the

LONGSCAN study to ascertain if the behavior of hurting animals persists and what

relationship it shows to the correlates identified in the current study.

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Appendix

Additional Reliability Statistics for the CBCL

For the SO site externalizing behavior scale alphas if a particular item is deleted range from .902 to .909. The variance is 84.47 with a standard deviation of 9.191. Skewness is 1.324, slightly skewed to the right, and kurtosis is 2.557. At the NW site the variance is 74.926 with a standard deviation of 8.656. Alphas if a particular item is deleted range from .888 to .897. Kurtosis is -.081 and skewness is .671 indicating a normal curve. At the SW site the variance is 88.208 for externalizing behavior with a standard deviation of 9.392. Alphas if an item is deleted range from .839 to .901. The skewness is 1.03, a normal distribution, and kurtosis is 1.088.

Ranges for the internalizing behavior scale if the item is deleted are .840 to .851 at the SO site. The variance is 38.481, and the standard deviation is 6.203. Skewness is 1.381, slightly skewed, and kurtosis is 1.855. The range for alpha if an item is deleted at the NW site is .805 to .828. Variance is 23.664 with a standard deviation of 4.865. Kurtosis is 5.00 and skewness is 1.846, moderately skewed to the right. Alphas for this scale if an item is deleted range from .798 to .810 at the SW site. The variance is 25.00, and the standard deviation is 5.00. Skewness is 1.438, slightly skewed to the right and the kurtosis is 2.029.

The aggressive behavior subscale at the SO site has a variance of 55.981 and a standard deviation of 7.482. Alphas if the item is deleted range from .887 to .896. The skewness is 1.04 which is in the range of a normal distribution and kurtosis is 1.107.

For the attention problems subscale, the variance is 10.886, and the standard deviation is 3.2994. Alphas if an item is deleted range from .706 to .733. Skewness is

1.667 and kurtosis is 4.266. The skewness is within the range for a normal distribution but somewhat skewed to the right. The delinquent behavior scale has a standard deviation is 2.1896, and the variance is 4.795. Alphas if items are deleted range from .607 to .682. The skewness for this scale is 2.622, severely skewed to the right and the kurtosis is 11.742. Turning to the NW site, for the aggressive behavior subscale the variance is 51.604 and the standard deviation is 7.1836. Alphas if an item is deleted from the scale range from .878 to .889. Kurtosis is -.148 and skewness is .608, a normal distribution. For the attention problems subscale the variance is 8.193 with a standard deviation of 2.8624. Alphas if an item is deleted range from .666 to .718. The skewness is 8.18 and the kurtosis is .213. The distribution for this scale is severely skewed to the right.

The alpha for the delinquent behavior subscale at the NW site on standardized items is only .526, so the reliability of this subscale is not high. The variance for the scale is 4.021 and the standard deviation is 2.005. Alphas if an item is deleted range from .477 to .561. Skewness is 1.178, slightly skewed to the right and kurtosis is 1.382.

At the SW site the variance for the aggressive behavior scale is 58.293, and the standard deviation is 7.635. Alphas if an item is deleted range from .880 to .890. Kurtosis is .516 and skewness is .839, a normal distribution. For attention problems the variance is 12.834, and the standard deviation is 3.582. Alphas if an item is deleted range from .755 to .787. Skewness is1.394 and kurtosis is 2.442. Skewness is within the range of a normal distribution. The delinquent behavior scale has a variance of 5.555 and a standard deviation of 2.357. If an item is deleted from the scale, alpha varies from .583 to .656. The skewness is 1.696, slightly to the right and kurtosis is 3.632.