

Revisiting a Link: Animal Abuse, Bullying, and Empathy in Australian Youth

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Experience of deliberate animal harm has been found to be a risk factor for school-based violence and later criminality. However, much of the extant research is based on retrospective or caregiver reports with few studies surveying youth directly. The aim of the current study was to address this gap. Sixty-three Australian youth (47 females, 16 males) aged 14-18 years completed an online survey assessing their experience of engaging in and/or witnessing animal abuse (AA) and engaging in/being a victim of bullying. Levels of egoistic need for power and human-directed empathy were also assessed. Expected gender-based differences in experience of animal abuse (directly and as a witness) and personality variables were found. As a cohort, witnessing and/or directly engaging in AA significantly correlated with bullying, while engaging in (not merely witnessing) AA, lower affective empathy and a high need for power were found to predict perpetration of bullying for males. Disparity in findings reported in the literature as well as predictive links between bullying and animal abuse suggest the need for more research in this area. The inclusion of humane education content within extant anti-bullying interventions may prove efficacious in attending to multiple risk factors including empathy deficits.

Keywords: animal abuse, bullying, youth, empathy, need for power

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It is important for community wellbeing to gain a better understanding of why children and youth abuse animals given that research suggests such abuse may be linked with other forms of antisocial or violent behaviors, both within a school setting (e.g., Henry & Sanders, 2007) and later in adulthood (e.g., Walters, 2013). Early, retrospective studies have repeatedly demonstrated a higher prevalence of engagement in animal abuse (AA) amongst incarcerated compared to community samples (e.g., Arluke, Levin, Luke, & Ascione, 1999) and for those convicted of violent, interpersonal crimes rather than non-violent crimes (e.g., Kellert & Felthous, 1985). While the nature of the link, particularly whether experience of early AA is a causal factor for adulthood violence, is increasingly debated (e.g., Patterson-Kane & Piper, 2009; Gullone, 2014a; Walters, 2013), the role of AA as an

indicator of risk or 'red flag' for certain types of antisocial behavior seems increasingly clear (e.g. domestic violence, McPhedran, 2009; and bullying, Gullone & Robertson, 2008; Henry & Sanders, 2007).

Animal Abuse Etiology

Investigations into potential predictors have found associations between exposure to violence (as a child) and engaging in AA (Ascione, 2001; Flynn, 2011). For example, Tapia (1971) found that parental abuse was the most common explanatory factor among boys with a history of AA. Kellert and Felthous (1985) reported that experience of (frequent) paternal violence and alcoholism was a common factor amongst all of the men in their study who admitted to childhood AA. More recent studies, surveying children and adolescents directly, have also demonstrated a link

between exposure to violence and AA (for a review see Gullone, 2014b). However, this relation appears less robust than that reported in retrospective studies. For example, Baldry (2005) surveyed Italian girls and boys aged 9-12 years, finding that while AA was significantly predicted by paternal verbal abuse for girls, no family-violence related variables significantly predicted AA for boys. In contrast, when Gullone and Robertson (2008) surveyed Australian adolescents (aged 12-16 years) they reported that experience of family conflict was a significant predictor of AA for both genders.

Some authors (e.g., Henry & Sanders, 2007) have suggested that the relation between childhood experiences of family violence and AA can be explained via a social learning framework. That is, children who are exposed to family members behaving aggressively learn that intimidation and violence are an appropriate means for social interaction. Other researchers point to empathy deficits that occur as a result of experience of family violence, which in turn make AA more likely. Interestingly, a large epidemiologic study in the US (with over 30,000 participants) found that high levels of childhood adversity (particularly those related to physical abuse) were strongly predictive of bullying behaviors, but not childhood AA. In contrast, experience of childhood sexual abuse and/or having a parent (or other adult living in the same house) go to jail increased the odds of AA. The authors concluded that bullying was more closely linked with social learning variables (i.e., violent adult exemplars) than AA, suggesting that AA appeared to relate more to callous, unemotional personality types where empathy development is compromised in some manner (Vaughn et al., 2011).

This conclusion is similar to that made by Gullone (2011) who suggested that children exposed to violence may experience a deficit in the normal development of empathy and/or may learn

how to disengage normative empathic reactions that would otherwise serve to inhibit aggression. Flynn (1999) adds that experience of childhood AA may not only result in lower empathy but also lowered inhibition in regards to aggressive behaviors. Highlighting the cyclical nature of the theoretical relation between childhood experience of violence, AA, and empathy development, Ascione (1993) suggested that AA during childhood may interfere with the development of empathy since AA is likely to inhibit a child's ability to adopt kind and compassionate behaviors. Similarly, Walters and Noon (2015) posited that childhood AA may interfere in psychological development (including empathy) and desensitize individuals to violent cues.

Empathy has been described as both an innate and a learned response that connects people as social beings to recognize and attend to the emotional needs of others (Daly & Morton, 2008; Thompson & Gullone, 2003). One of the most widely-held definitions of empathy conceptualizes it as a multidimensional construct that includes both cognitive and affective/emotional components (Davis, 1980; Gini, Albiero, Benelli, & Altoè, 2007). The cognitive component (arguably learned) is the ability to understand the emotional experience of another without vicariously experiencing that state, in contrast, the affective component is the quick (innate), vicarious emotional reaction in line with the emotional experiences of others (Davis, 1980). Consistent gender-based differences have been found with females more likely to have higher levels of both cognitive and affective empathy than males (Toussaint & Webb, 2005).

Empathy is thought to discourage aggressive acts by making the perpetrator aware of the discomfort of their victim (Thompson & Gullone, 2003) presumably leading to a reluctance to continue with aggressive/violent acts and promote pro-social behavior (Jolliffe & Farrington, 2006). However, as noted by Lovett and

Sheffield (2007), for some individuals causing distress in others may be reinforcing suggesting that the link between empathy (and components thereof) and aggressive behavior is less straight forward than often assumed. Whilst research does find empathy to be inversely related to aggression generally (e.g., Gini et al., 2007; Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000; Jolliffe & Farrington, 2004, 2006; Shechtman, 2002) the overall pattern and strength of relation differs across affective and cognitive components of empathy and is further compounded by age/developmental stage and gender (Gini et al., 2007; Jolliffe & Farrington, 2006; Lovett & Sheffield, 2007). For example, Lovett and Sheffield (2007) concluded that affective/emotional empathy was significantly (and negatively) correlated with aggression in older rather than younger children, while Shechtman (2002) found affective but not cognitive empathy to be negatively related to aggressive behavior in boys regardless of age. In contrast, Jolliffe and Farrington (2004) concluded that deficits in cognitive empathy were more strongly related to violent offending than levels of affective empathy, in younger compared to older offenders, mediated by cognitive ability and/or socio-economic status. Given the disparity in findings highlighted here, it is important that future research includes measures of cognitive and affective empathy components as these will have implications for intervention design (Shechtman, 2002).

There is evidence to suggest that human-directed empathy links in some way to attitudes to animals. Specifically that higher affective empathy tends to relate to higher concern for animal welfare (e.g., Taylor & Signal, 2005; Signal & Taylor, 2007). Perhaps this and the aforementioned gender interaction between empathy and attitude to animals provides some insight into the significantly higher prevalence rate of childhood AA observed for males (e.g., Vaughn et al., 2011). However, it has also

been suggested that childhood AA may occur through displaced aggression (Gullone, 2011, 2014b). Many of the participants in Kellert and Felthous' (1985) study (who abused animals in childhood) came from violent and chaotic families and were, themselves, physically abused thus AA may have occurred as their hostility was transferred from a person to an animal. According to the researchers this displaced aggression typically involved authority figures that the animal abuser feared or hated but were too afraid to aggress against. That is, it was easier for the child to be violent towards an animal than it was to be violent toward a parent or other adult.

Relatedly, childhood AA may be associated with the desire to exercise total power and control over an animal as a way of compensating for an individual's feelings of weakness or vulnerability (Kellert & Felthous, 1985; Oleson & Henry, 2009). Merz-Perez and Heide (2004) hypothesized that children may engage in AA as they need to exert power over weaker individuals. By means of exerting power over an animal the child protects themselves from the shame and fear resulting from their own weakness (Gullone, 2011). Combining both social learning perspectives and empathy, it has been suggested that children from violent homes may model the violent behavior displayed by their caregivers and enjoy the power they feel when they hurt an animal, but not suffer emotional consequences of their behavior due to their compromised empathy (McPhedran, 2009). Evidence that lends support to this dynamic was recently presented by Walters and Noon (2015) following examination of the retrospective accounts of 1,354 adjudicated youth. The authors concluded that retrospective accounts of AA were significantly correlated with a range of adverse family contexts (including parental drug use and conflict) and markers of reactive, externalizing problems such as callous/unemotional styles.

Animal Abuse and Bullying

Childhood AA has been linked with childhood bullying behaviors (Gullone, 2011; Henry & Sanders, 2007; Sanders & Henry, 2015). Bullying can be characterized as a subset of aggression that includes intentional harm, is repeated over time, and occurs in a relationship where there is an imbalance of power (Viding, Simmonds, Petrides, & Frederickson, 2009). According to Olweus (1995) bullies are typically aggressive to their peers, tend to be impulsive, have a need to control others, and lack empathy for their victims. Bullying at school has been identified as a serious problem with the potential to adversely affect school achievement, development of pro-social skills, and the psychological well-being of both the victim and perpetrator (Wang, Iannotti, & Nansel, 2009). Results from the Australian Covert Bullying Prevalence Study on a sample of almost 21,000 Australian students aged 8 to 14 years, found that one in four students reported being bullied during their school years (Cross et al., 2009). Similar to AA, gender differences have been found in bullying behaviors, with boys more likely to be involved in direct bullying behavior than girls (Wang et al., 2009; Viding et al., 2009). Findings for gender differences for indirect bullying however, have not been so consistent (Viding et al., 2009), although a meta-analysis conducted by Archer (2004) found girls were more likely to be involved in indirect bullying behavior than boys.

A conceptual link seems to exist between childhood AA and childhood bullying behaviors (Gullone, 2014a; Henry & Sanders, 2007). In both, the perpetrator appears to be more powerful than the victim, and this power is used to inflict aggressive or cruel behaviors on the victim (Gullone 2011; Henry & Sanders, 2007). Henry and Sanders (2007) investigated the connection between AA and bullying using retrospective self-reports of 185 college-aged, male students. Two important patterns emerged from their results. The

first was that participants who engaged in a single episode of AA did not differ from those who did not engage in AA in regards to being either a victim, or a perpetrator, of bullying. In contrast, those who reported they had engaged in multiple acts of AA were more likely to be above the median for both victimization and perpetration of bullying when compared with those who were one time or non-animal abusers. Indeed, those who were above the median with regards to victimization and perpetration of bullying reported the highest rate of multiple acts of AA. The researchers concluded that high levels of victimization and/or perpetration were associated with involvement in AA. This relationship was particularly strong for those who participated in multiple acts of AA. Importantly the large, epidemiologic study mentioned earlier (Vaughn et al., 2011) did not evaluate the frequency or severity of AA engaged in as a child, given Henry and Sanders (2007) findings it may be that this contributed to the lack of relation between experiences of family violence and AA. Although caution needs to be taken when interpreting results based on retrospective recall due to poor agreement between retrospective and prospective accounts (Henry, Moffitt, Caspi, Langley & Silva, 1994) and possibilities of biased recall (Vaughn et al., 2011), the potential overlap between AA and bullying is of applied importance. That is, while prevention/intervention programs for bullying are well known and to some extent empirically supported (Vreeman & Carroll, 2007) there is a distinct lack of empirically-supported, school-based interventions for childhood AA (Vaughn et al., 2011). If commonality exists between bullying and AA behaviors it may be that extant anti-bullying interventions could be extended to AA prevention as well. However, to assess this requires a move away from retrospective examinations.

One of only two published studies examining childhood AA and bullying behaviors via direct sampling of children or

adolescents was conducted by Baldry (2005). Baldry sampled 532 Italian preadolescents and investigated the prevalence of AA, experience of abuse at home and school, and bullying. Baldry found that just under half of boys and a third of all girls aged 9 – 12 in the study had harmed an animal in some way, and children who engaged in direct bullying behaviors were twice as likely to have engaged in AA as their non-bullying peers. Additionally, Baldry found that boys who reported they were victims of bullying were more likely to engage in AA than boys who were not. Children who witnessed harm to animals were three times more likely to have abused animals than their peers who did not witness such abuse. This latter finding is similar to that reported in adult, retrospective studies (e.g., Hensley & Tallichet, 2005).

The second study examining the interplay between school-aged accounts of AA and bullying behaviors was conducted by Gullone and Robertson (2008) in Australia. They reported a significant, positive relationship between AA and bullying behaviors in a sample comprising 241 adolescents aged from 12 to 16 years. Like Baldry (2005) significant gender differences emerged with boys more likely to engage in AA than girls. They also found a significant, positive relationship between witnessing AA and engaging in both AA and bullying behaviors. In fact, witnessing AA was found to predict the likelihood that participants had engaged in AA and/or bullying similar to studies using retrospective methodologies (e.g., Hensley & Tallichet, 2005). However unlike Baldry, Gullone and Robertson reported that while there was a positive correlation between victimization and AA this relation was not a predictive one. Although it is possible the difference in findings may be due to cultural and/or age differences the fact that these are the only published studies to examine concurrent rather than retrospective accounts of the link between

bullying and childhood AA means there is a clear need for further investigation.

Thus one aim of the current study was to add to the limited research examining the link between witnessing and/or engaging in AA and bullying within an adolescent population. A second aim was to extend this coverage by examining if AA or bullying can be predicted by low levels of empathy and high levels for a need for power. Based on previous literature it was hypothesized that those who engage in (adolescent) AA are more likely to be male; have witnessed others committing AA; and be a bully, or a victim of bullying. It was also hypothesized that those who engage in AA and those who engage in bullying behaviors will have higher levels of a need for egoistic power and lower levels of cognitive and affective empathy.

Method

Participants

Seventy-three individuals responded to the survey, however 10 participants were deleted from the final sample as they did not respond to sufficient questions to be used in any of the subsequent analyses. Consequently, the final sample for data analysis consisted of 63 adolescents aged between 14 and 18 years (47 females). The mean age for females was 16.13 years ($SD=1.57$ years), and for males was 16.06 years ($SD=1.88$ years).

Procedure

Participants aged between 14 and 18 years who were residents of Australia, were recruited via Facebook snowball sampling. The researcher's posted a link to an anonymous, online survey on Facebook pages to which they had access; with participants invited to forward the link to their respective networks as well. There is agreement in the literature that 14 year olds have the cognitive capacity to understand information that is necessary to give informed consent and can be considered mature minors (Schachter, Kleinman, &

Harvey, 2005). Given this and the fact that fourteen year olds are legally able to open a Facebook account, parental consent was not obtained to participate in the study. After initially accessing the online survey, participants completed a consent process that confirmed they were residents of Australia and were aged between 14 and 18 years. This study was granted ethical approval from the CQUniversity Human Research Ethics Committee (HREC project number H14/05-107).

Measures

Animal abuse. To assess whether participants had ever engaged in animal abuse, the five item direct abuse subscale of The Physical and Emotional Tormenting Against Animals scale (PET; Baldry, 2004) was used. The direct animal abuse subscale measures bothering, harming, tormenting, being cruel, and hitting animals. Sample items include “Have you ever hurt them (by kicking them, pulling their tail, or hair)?” and “Have you ever been cruel to them, enjoying yourself by seeing their suffering?” To assess whether participants’ had witnessed adults, their father, mother, or friends harming animals, the four item ‘indirect’ subscale of PET was used (hereafter referred to as witnessed/witnessing AA). Sample items include, “Have you ever seen your father hurting an animal,” and “Have you ever seen your mother hurting an animal?” Participants responded on a five point Likert scale (1 = never, 5 = very often) to indicate how often they have engaged in direct abuse or witnessed AA. The five items in the direct AA subscale have been demonstrated to have good internal consistency ($\alpha = .84$, Baldry, 2004; $\alpha = .70$, Gullone & Robertson, 2008) and are summed to give a total direct AA score. Cronbach’s alpha in the present study was found to be good ($\alpha = .81$). The four items in the witnessing AA subscale have been shown to have adequate internal consistency ($\alpha = .69$, Baldry, 2004; $\alpha = .69$, Gullone & Robertson, 2008). The

witnessed AA subscale had reasonable internal consistency in the present study ($\alpha = .71$). High values in either the direct or witnessed subscales represent greater experience of AA.

Bullying and victimization. To measure if, and to what extent, a participant has engaged in bullying behaviors, the four item bully subscale of the Peer Relations Questionnaire (PRQ; Rigby & Slee, 1993) was used. Sample items include “I give soft kids a hard time,” and “I am part of a group that goes round teasing others.” To measure if, and to what extent, a participant has been victimized, the four item victim subscale of PRQ was used. Sample items include “I get called names by others,” “I get picked on by others.” Participants responded on a four point Likert scale (1 = never, 4 = very often) with scores on each subscale summed to give a total subscale score. Internal consistency of both the bully subscale and victim subscale have been found to be adequate (bully subscale, $\alpha = .75 - .78$; victim subscale, $\alpha = .86 - .78$, Rigby & Slee, 1993). In the present study the bully subscale was found to have reasonable internal consistency ($\alpha = .76$) and the victim subscale was found to have excellent internal consistency ($\alpha = .93$).

Need for power. To measure the level of participants need for egoistic power, ten items from the need for power (nPower) subscale of the Index of Personal Reactions (Bennett, 1988) was used. Sample items include, “I think I would enjoy having authority over others,” “I would enjoy being a powerful executive or politician,” and “I want to be the one who makes the decisions.” Items were answered using a five point scale (0 = denial of the desire for power, 4 = a strong positive desire for power). After five items were reverse scored, the scores were summed to give a total score for nPower. Internal consistency has been shown to be good with Cronbach’s Alphas in the high eighties for males and females, and test-retest correlations have also proven to be stable (Bennett, 1988). Cronbach’s alpha was found to be

reasonable in the present study ($\alpha = .76$). Significant and positive correlations between the bullying and need for power measures provided convergent validity of these two scales for both male and female participants.

Empathy. To measure participant's levels of cognitive empathy, the seven item Perspective Taking (PT) subscale of the Interpersonal Reactivity Index (IRI; Davis, 1980) was used. Sample items include, "Before criticising somebody, I try to imagine how I would feel if I were in their place," and "If I'm sure I am right about something, I don't waste much time listening to other people's arguments." To measure the levels of participant's affective empathy, the seven item Empathic Concern (EC) subscale of the IRI was used. Sample items include, "When I see someone being taken advantage of, I feel kind of protective toward them," and "When I see someone being treated unfairly, I sometimes don't feel very much pity for them." Items on the PT and EC subscales are answered on a five point scale (0 = does not describe me well, 4 = describes me very well). After reverse scoring for two items on the PT subscale, and three items on the EC subscale, the scores on each subscale were summed to give a total score, with higher scores indicating higher cognitive and affective empathy respectively. Scores from both subscales are summed to give a total empathy score. Based on adult samples, internal consistency has been found to be reasonable for both the PT ($\alpha = .75$ for

males, $\alpha = .78$ for females) and the EC ($\alpha = .72$ for males, $\alpha = .70$ for females, Davis, 1980). Cronbach's alpha's for the present study were found to be reasonable for the PT ($\alpha = .71$) and the EC ($\alpha = .76$) subscales. Internal validity of the IRI was assessed by comparing scale intercorrelations (i.e., PT and EC), for both male and female participants the two subscales correlated positively and significantly (.718 and .471 respectively).

Results

Responses from 62 participants (15 males and 47 females) were used in the final data analysis for the IRI PT and EC subscales due to one male participant not responding to these questions. A missing value analysis revealed Question 38 of IRI EC subscale had two missing values. Little's MCAR test was not significant ($p = .454$) so these two values were replaced with the estimated marginal mean for that item. Reverse scoring was applied as appropriate prior to data analysis. A power analysis revealed that 63 participants would only have a 65% chance of detecting a weak correlation if it existed in the population therefore only exploratory analyses were performed (Francis, 2012).

Table 1 presents the means and standard deviations for experience of direct or witnessed AA, engaging in bullying, being a victim, need for egoistic power (nPower), and cognitive (PT) and affective empathy (EC) as a function of gender.

Table 1: Mean (and SD) for the Study Variables.

Scale	Total N = 63	Female N = 47	Male N = 16	t	Hedges' g
AA Direct	6.63 (2.34)	6.15 (1.27)	8.06 (3.86)	-2.17*	-0.85
AA Witness	5.95 (2.27)	5.77 (2.15)	6.50 (2.58)	-1.00	-0.32
Bully	5.08 (1.79)	4.70 (0.98)	6.19 (2.93)	-2.01	-0.87
Victim	7.89 (2.96)	8.06 (3.07)	7.38 (2.60)	0.88	0.23
nPower	31.03 (7.22)	29.34 (6.08)	36.00 (8.19)	-3.54**	-0.99
Perspective Taking	27.43 (4.28)	25.09 (4.16)	21.67 (3.70)	2.79**	0.83
Empathic Concern	27.43 (5.15)	28.99 (4.36)	22.51 (4.37)	4.80**	1.47

Note. t = independent samples t-test.

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

Mean scores were skewed toward the lower end of the possible range of scores for all variables. Independent samples *t*-tests (two tailed) investigating sex differences yielded a significant difference for AA Direct scores, nPower scores, and both empathy subscales. Males were more likely than females to engage in AA directly ($p = .045$) and were more likely to have a need for egoistic power ($p = .001$). In contrast females were more likely than males to have higher levels of cognitive empathy ($p = .007$) and/or affective empathy ($p = <.001$). Given the unequal distribution of females and males we assumed unequal variances and report Hedges' *g* as an unbiased measure of effect size (Ellis, 2009).

Table 2 displays the Pearson correlation coefficients between the study variables as a function of gender. For males, direct engagement in AA was positively and significantly related to witnessing AA ($p < .01$) and engagement in bullying ($p < .001$). AA (direct) and bullying were

both found to be significantly negatively related to cognitive empathy ($p < .05$) while only bullying related to affective empathy ($p < .001$). Both direct AA and bullying were significantly positively related to need for egoistic power ($p < .05$). For females, a significant (positive) correlation was found between witnessing AA and being a victim of bullying ($p < .05$) and between need for power and bullying perpetration ($p < .05$).

To look at the relative prevalence of the different types of AA experienced each of the items for AA direct and AA witnessed subscales were recoded into dichotomous "never" versus "have" scales. As can be seen in Table 3, witnessing AA was more common than direct engagement with 44% of the sample reporting seeing friends and/or adults harming animals. One quarter of the current sample reported witnessing their father engaging in AA, an experience which was relatively more common for boys (44% of males vs 19% of females). Similarly, while 25% of the overall sample indicated engaging in 'tormenting' animals,

Table 2: Pearson's Correlation Coefficients Between Study Variables as a Function of Gender.

	AA Witness		Bully		Victim		nPower		PT		EC	
	F	M	F	M	F	M	F	M	F	M	F	M
AA Direct	-.052	.709**	-.033	.673**	-.170	.394	.140	.597*	.099	-.617*	.215	-.444
AA Witness			.070	.490*	.358*	.545*	.020	.394	-.161	-.267	-.027	-.200
Bully					.195	.646**	.296*	.598*	-.117	-.523*	-.254	-.666**
Victim							.083	.419	-.230	-.145	-.159	-.211
nPower									-.084	-.517*	-.014	-.569*
PT											.471**	.718**

* $p < 0.05$ ** $p < 0.01$

Table 3: Number of Participants Endorsing Direct Engagement in, and Witnessing of, Animal Abuse

	Have			Never		
	Total	Female	Male	Total	Female	Male
<u>Direct "Ever ..</u>						
Bothered	26 (41%)	17	9	37 (49%)	30	7
Hurt (e.g., kicking/pulling tail)	14 (22%)	8	6	49 (78%)	39	10
Tormented	16 (25%)	9	7	47 (75%)	38	9
Cruel (enjoy suffering)	3 (5%)	0	3	60 (95%)	47	13
Hit	19 (30%)	14	5	44 (70%)	33	11
<u>Witnessed "Ever seen X hurting ..</u>						
Friends	28 (44%)	20	8	35 (56%)	27	8
Adults	28 (44%)	20	8	35 (56%)	27	8
Father	16 (25%)	9	7	47 (75%)	38	9
Mother	9 (14%)	5	4	54 (86%)	42	12

males were relatively more likely to do so (44% vs 19%). Five percent of the overall sample admitted to being cruel to animals and 'enjoying suffering,' all of these were male ($n=3$, 19%).

To assess the utility of AA experience and associated variables for predicting bullying behaviors an initial multiple, linear, regression was conducted. Total scores on the PRQ-Bully subscale were entered as the dependent variable with gender and scores on the Victim (of bullying), AA direct, AA witnessed, nPower, and EC/PT empathy scales entered as independent variables (this regression equation predicted approximately 44% of the variance in PRQ-Bully scores). Interestingly gender, witnessing AA, being a victim of bullying, and cognitive (PT) empathy all failed to load onto this first equation. Following the procedure outlined by Field (2013) a second, forward (stepwise) regression was then performed entering only those predictor variables shown to contribute significantly in the first calculation (with order of entry dictated by standardized B weights from equation one, i.e., EC (affective empathy), AA direct, and nPower). All of the entered predictor variables loaded on the resultant model, which explained 44.7% of the variance in PRQ-Bully scores ($Adj R^2=0.447$, $F(3,61)=17.460$, $p < 0.001$). Durbin-Watson (2.039) and VIF (1.2-1.4) scores indicated a robust equation which meets underlying assumptions. Cross-validation of the model was performed via calculation of Stein's equation (adjusted $R^2 = 0.412$), given that this value was very similar to the observed R^2 value good cross-validity can be assumed (Field, 2013). Examination of the standardized B values indicated that the strongest predictor of engaging in bullying behaviors was scores on the AA-direct subscale (0.333, $p < 0.01$), followed by Empathic Concern (-0.329, $p < 0.01$), and nPower (0.241, $p < 0.05$). In looking at the model summary table AA-direct scores (when loaded as the sole predictor variable) proved to explain approximately 28% of the

variance underscoring the importance of this type of experience in predicting engagement in bullying.

Discussion

The results of the current study partially support the hypothesis that those who abuse animals are more likely to be male; have witnessed others engaging in AA; and be a bully, or a victim. Findings from the current study also support the hypothesis that males who admit to deliberately harming animals and those who engage in bullying behaviors (regardless of gender) tended to have higher levels of a need for egoistic power and lower levels of cognitive and affective empathy. Additionally the current study goes some way to demonstrating that engagement in AA, lower empathy, and higher need for power as a young person are predictive of that individual also engaging in bullying.

While the finding that males were more likely to indicate they themselves had engaged in AA than the females in the sample matches findings from previous research (e.g. Baldry, 2005; Gullone & Robertson, 2008), the relative lack of research examining female engagement in deliberate animal harm, and the impact this has on later functioning, needs to be acknowledged. As has been noted elsewhere (e.g., Sanders & Henry, 2015; Taylor & Signal, 2013; Thomson & Gullone, 2006) past investigations of links between animal abuse and antisocial behavior have tended to look almost exclusively at male samples – reflecting a gendered bias within criminology more broadly (Heidensohn, 2010). However, suggestions that gender roles are converging (e.g., Diekmann & Eagly, 2000) coupled with studies that find that direct AA by females (particularly as adolescents) may be more common than first thought (e.g., Connelly, 2007), and is linked with similar patterns of behavioral difficulties to male perpetrators (e.g., Sanders & Henry,

2015; Walters, 2013) means that this is an area that warrants further investigation. There is clearly a need for a larger, more gender-balanced assessment of AA (engagement and witnessing) and bullying in youth in order to robustly investigate the purported link between these behaviors.

One of the criticisms levelled at extant research that has found support for links between AA and other forms of antisocial (violent) behavior relates to the lack of definition for AA with some simply asking participants if they engaged in AA in the past (Patterson-Kane & Piper, 2009). This lack of specificity potentially means that reported prevalence rates/relations were based on subjective opinion. Given that what counts as abusive acts for one person, or in one culture or setting, may not be deemed abusive for another this is a serious confound. Similar to Gullone and Robertson (2008), one of the strengths of this study was the use of a well validated AA scale that allowed not only direct comparison with previous studies but also the ability to 'drill down' into specific types and severities of AA. However, as for Gullone and Robertson only general 'frequencies' of AA were recorded (e.g., hardly ever, sometimes, often etc) – future studies would benefit from more specific investigation of the frequency of engaging in AA (or bullying) behaviors as this has been suggested to mediate the 'link' between AA and antisocial behavior and empathy (e.g., Daly & Morton, 2008; Henry & Sanders, 2007). It is also worth noting that animal abuse is not a unitary phenomenon. Ascione (2001) proposes three taxonomies of childhood animal abusers (exploratory, pathological, and delinquent) related to, in part, the type/severity of abuse engaged in. Importantly, each of the three categories is suggested to need different intervention strategies in order to reduce AA in that cohort. In contrast, the measure used here and other studies (e.g., Gullone & Robertson, 2008) collapses a range of acts of 'abuse' into a singular indicator of direct

AA engagement, potentially masking conceptually different pathways between childhood AA and other behaviors/traits. Thus, one direction for future research could be to investigate the impact (if any) of different acts within the overall rubric of childhood AA.

Consistent with past research (e.g. Baldry, 2005; Gullone & Robertson, 2008; Thompson & Gullone, 2006) direct experience of AA was positively correlated with witnessing AA and engaging in bullying behaviors for males. Unexpectedly, witnessing AA proved not to be predictive of engaging in bullying behaviors across the cohort, however given the relatively strong correlation between witnessing AA and bullying for males in particular ($r = 0.490$), it may be that other variables were moderating this relation. Due to the small sample size, further investigations of mediation/moderation were not undertaken but may be an area worth investigating given the overall prevalence of witnessing AA here and in other studies (e.g., Thompson & Gullone, 2006). In particular it may be worth looking at the differential effect of the 'model' who perpetrated the AA as previous research has shown this to relate to prevalence of direct engagement in AA (Thompson & Gullone, 2006). Although beyond the scope of this pilot study, it is also important to note that some researchers have suggested that children/adolescents may perceive bullying differently to the definition commonly used in research (and that which underpins the measure used here), with a greater focus on physically aggressive acts than power imbalances and verbal/relational acts (Vaillancourt et al., 2008). Given the age group of the current sample this may also have played a part in the lack of a predictive relation.

More broadly these results provide further support for the deviance generalization hypothesis of human-animal abuse links which suggests that AA is simply one of many forms of antisocial behavior that may arise in childhood and

continue into adulthood (Arluke et al., 1999; Gullone, 2014a). It may also be that engaging in any of the three maladaptive behaviors (bullying, witnessing or engaging in animal abuse) assists to desensitize adolescents to the effects of violence, potentially reinforcing the use of violence as a means of social control (Gullone, 2011, 2014b; Taylor & Signal, 2013). The overlap between these types of adverse behavior/experience suggests that including interventions for AA within existing anti-bullying interventions (particularly in school settings) has the potential to address a wide range of risk factors for future antisocial behavior. While there is not as large a literature base of empirically supported school-based interventions for children who engage in AA as there is for bullying (Vaughn et al., 2011), there is evidence to suggest that classroom lessons aimed at promoting humane treatment of animals result in increased human-directed empathy (e.g., Arbour, Signal & Taylor, 2009; Daly & Suggs, 2010; Faver, 2010). School-based programs may also increase exposure to positive (i.e., non-abusive) peer models, an important consideration given the prevalence of familial models of AA noted here and elsewhere (e.g., Thompson & Gullone, 2006).

What is unclear is whether humane education targets affective or cognitive empathy (or both), and to what extent. While Shechtman (2002) suggests that addressing affective empathy deficits (in relation to aggressive behavior) is essential, the current study indicates a stronger relation with cognitive empathy (PT) than affective empathy (for bullying and AA direct). Given that humane education has a dual focus on communicating both the needs of animals and their perspective as well as recognizing emotional states such as fear, sadness, etc. (e.g., Arbour et al., 2009, Faver, 2010) it may be that this type of intervention is uniquely placed to address both forms of antisocial behavior. Future studies examining the impact of adding

specific humane education and/or empathy development into existing anti-bullying programs would therefore be particularly valuable.

The current study failed to find a significant correlation between direct AA and being a victim of bullying for either gender. This was unexpected as a number of researchers (e.g. Baldry, 2005; Gullone & Robertson, 2008; Sanders, Henry, Giuliani & Dimmer, 2013) have reported significant associations between AA and such victimization. Indeed Baldry (2005) found that children who were victims of bullying were 1.4 to 1.7 times more likely to engage in AA. Sanders et al. (2013) suggested that the maltreatment of animals was consistently associated not only with being a perpetrator of bullying, but also of being a victim of bullying. While methodological (e.g., retrospective vs contemporary reporting) and/or cultural (e.g., Australia vs Italy) differences may explain some of the inconsistencies, the difference in findings between the current study and that of Gullone and Robertson (2008) are harder to explain. Again a larger, nationally representative study is clearly needed; particularly given that scores on AA-direct (8.06 for males and 6.15 for females) and AA-witness (6.50 for males and 5.77 for females) scales are substantially higher in the current study than found 6 years previously by Gullone and Robertson (AA-direct 6.14 and 5.74; AA-witness 5.64 and 5.41 respectively) potentially indicating an increase in the prevalence of these behaviors.

The positive correlation found in the current study between the variables direct animal abuse, bullying, and nPower (and the predictive power of nPower for both genders), suggests that male adolescents who abuse animals, or who engage in bullying (either gender), have higher needs for egoistic power. This is not surprising considering that both behaviors have been said to involve an imbalance of power over a perceived weaker individual/animal (Kellert & Felthous, 1985; Merz-Perez &

Heide, 2004; Viding et al., 2009). Similar to Oleson and Henry (2009), the current study found a relation between nPower and callous attitudes to animals only for males while nPower was related to bullying for both genders. Also of note in the present study were the findings that victims of bullying who engaged in AA had lower levels of empathy than victims of bullying who did not engage in AA and the negative correlation found between overall empathy (EC/PT) and direct AA for boys. While the reason for these finding is unclear, it may be that engaging in AA during childhood inhibited the development in empathy as suggested by Thompson and Gullone (2003) which in turn has a role to play within bullying behaviors (both as a perpetrator and a victim). Future studies examining relations between adolescents' empathy levels, need for egoistic power, and their engagement in AA and/or bullying may prove to be a particularly fruitful area for developing effective anti-bullying interventions.

While this study has provided some insight into the link between AA, bullying, empathy, and need for egoistic power, there are obvious limitations that warrant mention. Firstly, far more females (74.6%) participated in the survey than males (25.4%). While there are benefits in attracting female participants due to limited research on female human-animal violence as noted earlier, as significant gender differences have been found in both AA and bullying, it would have been preferable to have approximately equal numbers of males and females. In hindsight, as males are underrepresented on Facebook (Kiser, 2012) it would have been beneficial to target additional websites (e.g., gaming/sports sites) to increase the reach of the recruitment notice to potential male participants. Ethical constraints precluded offering an incentive to this population (due to age and potentially sensitive nature of some items); however, some way to incentivize participation in a larger, nationally representative sample may be

needed. Alternatively, recruitment via schools and/or other age-appropriate groups may be more effective (see Thompson and Gullone (2003) and Gullone and Robertson (2008) for examples of the efficacy of a school-based approach).

In conclusion, while the current study was exploratory, the results help address a significant gap in the literature regarding non-retrospective and direct assessment of childhood/adolescent experiences of AA and how this relates to (a) predictive personality variables such as empathy and need for power and (b) other forms of anti-social behavior such as bullying that may be co-markers of serious behavioral difficulties. The need for such research has been highlighted in a number of studies (e.g., Sanders & Henry, 2015; Thompson & Gullone, 2006; Vaughn et al., 2011) and given the potential life-time correlates of engaging in either bullying or AA (for the individual, their victims, and society more widely) the current findings are timely and suggest a need for further research in this area.

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