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The relationship between bullying and animal abuse behaviors in adolescents: The importance of witnessing animal abuse

Eleonora Gullone*, Nerida Robertson

School of Psychology, Psychiatry, and Psychological Medicine, Monash University, Australia

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ABSTRACT

Children's abuse of animals may be predictive of aggression towards humans. This study assessed concurrent engagement in animal abuse and bullying behaviour in 241 adolescents aged 12 to 16 years. A total of 20.6% of youths reported abusing animals at least "sometimes" and 17.8% reported bullying others on at least one occasion in the past year. Multiple regression analyses revealed witnessing animal abuse to be a common predictive factor for each of animal abuse and bullying. However, family conflict was a significant predictor only for animal abuse, while victimization by peers was a significant predictor only for bullying. Although there were both common and differentiating predictive variables for each behavior, the finding that witnessing animal abuse was predictive of both is supportive of past research and warrants further research attention. The findings have significant implications for the prevention and intervention of bullying and animal abuse behaviors.

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1. Introduction

Human aggression is behavior that has intent to harm and that has a negative effect on its victim (Anderson, 2000; Anderson & Bushman, 2002; Coie & Dodge, 1998; Tremblay, 2000). Aggressive behavior is viewed as a heterogeneous phenomenon with some overlap among its many forms (Cohen, Hsueh, Russell, & Ray, 2006). In addition, aggression has been found to take on different forms at different developmental ages (Anderson & Huesmann, 2003).

Although physical aggression is relatively common in preschoolers (NICHD Early Child Care Research Network (ECCRN), 2004; Shaw, Gilliom, Ingildsby, & Nagin, 2003), there is an overall marked decline during the early school years (Broidy et al., 2003; Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Rey, Sawyer, & Prior, 2005). Nevertheless, for a small proportion of high-risk children with a history of early-onset persistent aggression, aggressive behaviors remain stable and persist into adolescence and adulthood (Kokko & Pulkkinen, 2005).

To a large extent habitual aggressive behavior is learned from children's early interactions with their environment (Anderson, 2000; Huesmann & Miller, 1994). The child's parents, peers, and environment are all important elements in the socialization process and in individual differences in learned responses. Eron (2001) suggested that exposure to aggression in the family and in the environment is one pathway for the acquisition of aggressive behaviors. Such exposure may foster a belief in children that aggressive behaviors are normative and appropriate. Social learning perspectives propose that a child can vicariously acquire aggressive behaviors by witnessing violent interactions in their family and community (Anderson, 1997; Bushman & Geen, 1990; Schwartz & Proctor, 2000).

In addition to the importance of exposure to aggression in the development of aggressive behavior, recent studies demonstrate that the modality of exposure, either as a witness or as a victim, plays a significant role. For example, Shahinfar, Kupersmidt, and

* Corresponding author. School of Psychology, Psychiatry and Psychological Medicine, Monash University, Wellington Road, Monash, Victoria 3800, Australia. Tel.: +61 3 9905 3149; fax: +61 3 9905 3948.

E-mail address: Eleonora.Gullone@med.monash.edu.au (E. Gullone).

Matza (2001) found that highly aggressive adolescents were often victims and witnesses to violence themselves. Shahinfar et al. concluded that *witnessing* violence is related to social information processes that increase the likelihood of aggression being evaluated as a viable solution to social problems. Being a victim has been linked to a perception of the world as threatening, thus enhancing the need for revenge and dominance of others (a hostile perception bias). Thus, the pathways to engagement in aggressive behaviors in adolescents are strengthened by exposure to aggressive and violent acts, experienced either as a witness and/or as a victim.

The present study focused on two manifestations of adolescent aggressive behaviours: animal abuse and bullying. Our aim was to examine whether the two can be predicted by the same variables (implying common acquisition pathways). There is substantial conceptual commonality between animal abuse and bullying behaviors in youth. First, similarities are apparent in the definitions of animal abuse and bullying, with both behaviors being represented by a continuum of negative acts and with outcomes ranging from mild to severe (Ericson, 2001; Hensley & Tallichet, 2005). Animal abuse has been defined as a “socially unacceptable behavior that intentionally causes unnecessary pain, suffering or distress to and/or death of an animal” (Ascione, 1993, p. 228). This definition excludes socially approved practices such as hunting and certain agricultural and veterinary practices (Ascione, 2005). A recent definition of bullying indicates that it “involves a desire to hurt + a power imbalance + (typically) repetition + an unjust use of power + evident enjoyment by the aggressor and generally a sense of being oppressed on the part of the victim” (Rigby, 2002, p. 51). It is generally agreed that a definition of bullying needs to encompass an intention to inflict either verbal, physical or psychological harm, repeated incidents, a victim who does not provoke the bullying behaviors, occurrences in familiar social groups and a power differential (Baldry, 1998; Baldry & Farrington, 2000; Griffin & Gross, 2004; Gumpel & Meadan, 2000). These definitions indicate that animal abuse and bullying both involve an intention and desire to inflict physical, emotional or psychological harm on the victim and a power imbalance where the perpetrator is more powerful than the victim.

An additional similarity between animal abuse and bullying can be found in the sex distributions of these behaviours, which are consistent with those found in the wider aggression literature. Studies have reported that males engage in rates of animal abuse behaviors that are four times higher than those of females (Flynn, 1999), and that males are more likely than females to engage in bullying behaviors (Baldry, 1998; Veenstra et al., 2005).

Moreover, the association between animal abuse and bullying behaviors has been acknowledged within a clinical framework, as is evident by the DSM-IV-TR classification of both as two of the earliest presenting symptoms of conduct disorder (American Psychiatric Association, 2000). In a meta-analysis of studies from community and clinical child and adolescent populations, Frick et al. (1993) found that each of these behaviors first appears within a short time frame, being between 6.5 and 7 years of age, and that both behaviours are representative of a cluster of symptoms of conduct disorder characterised by overt and destructive behaviors. Moreover, Frick and colleagues have proposed that, when identified in early childhood, bullying and animal abuse are potentially valid indicators of childhood psychopathology.

Finally, both behaviours have been individually linked to other antisocial behaviors. Childhood histories of animal abuse have been associated with clinical child psychopathology (Tapia, 1971), a history of criminal behavior (Arluke, Levin, Luke, & Ascione, 1999), adult violence perpetrated against humans (Merz-Perez, Heide, & Silverman, 2001), antisocial personality disorder in adulthood (Gleyzer, Felthous, & Holzer, 2002), and a greater involvement in a variety of delinquent behaviors (Henry, 2004b). Bullying, when identified during the childhood years, has been linked to delinquency (Baldry & Farrington, 2000; Rigby & Cox, 1996; Viljoen, O’Neill, & Sidhu, 2005), and a greater risk of adult antisocial behavior (Haynie et al., 2001; Salmon, James, Cassidy & Javaloyes, 2000).

A potential overlap in the acquisition of these two behaviors comes from recent empirical studies. Thompson and Gullone (2006) found that adolescents who witnessed animal abuse on at least one occasion also reported engaging in significantly higher levels of animal abuse than peers who reported never having witnessed animal abuse. Similar results have linked witnessing of interpersonal violence and increased engagement in animal abuse (Baldry, 2003a). The same pattern of social learning has been implicated in the acquisition of bullying behaviors in adolescents. Baldry (2003b) found that children who engaged in bullying behaviors were 1.8 times more likely to have witnessed domestic violence than those who did not. Exposure to adult aggression and conflict (Schwartz, Dodge, Pettit, & Bates, 1997), intimate partner violence (Bauer et al., 2006), and media violence (Lee & Kim, 2004) have also been associated with increased engagement in bullying behaviors.

In summary, existing evidence suggests that children who witness aggression between humans are more likely to engage in aggression directed toward both human and non-human animals, and that children who witness aggression perpetrated against animals are more likely to engage in animal abuse. To date, no study has investigated the significance of exposure to aggression in the form of witnessing animal abuse, for aggression directed toward humans.

The comorbidity between human-directed and animal-directed violence has been well documented (see reviews by Faver & Strand, 2003; Gullone & Clarke, 2008). Empirical support includes studies showing that adult animal abuse often occurs in conjunction with domestic violence and other aggression directed toward humans (e.g. Flynn, 2000a; Volant, Johnson, Gullone, & Coleman, *in press*). Based on this documented co-occurrence of animal abuse and aggressive behaviors toward humans predominantly in adult samples, and given the predictive importance of these behaviours, when occurring during the childhood or adolescent years, for adult aggression and antisocial behavior, there is a need to direct our empirical attention to their co-occurrence during these younger years.

Both animal abuse and bullying behaviors have been reported to show similar developmental patterns through childhood and adolescence, albeit predominantly in separate investigations. Although findings have revealed an association between animal abuse and a host of antisocial behaviors, we have been able to identify only two studies that specifically addressed the co-occurrence of animal abuse and other antisocial behaviors in non-adult samples. Becker, Stuewig, Herrera, and McCloskey (2004)

compared children who had experienced violent home lives with children from non-violent homes. Children who abused animals were more likely than non-animal abusing children to come from families where marital violence was present. These children were also more likely than comparison children to engage in firesetting and to be diagnosed with conduct disorder. In the second study, Baldry (2005) found that youths who witnessed violence between family members or who witnessed harm to animals, were three times more likely to have abused animals compared to peers without such experiences. This study also indicated that girls and boys who had engaged in bullying behaviors were twice as likely to have abused animals compared with their non-bullying peers. Engagement in animal abuse by boys was predicted by their victimization at school and their engagement in bullying of peers, while engagement in animal abuse by girls was predicted by their witnessing of animal abuse and by their experience of verbal abuse by their fathers.

Given that witnessing animal abuse, especially when this occurs prior to adulthood (Henry, 2004a), may contribute to the development of aggressive tendencies, including animal abuse (Henry, 2004b), the current study investigated concurrent engagement in bullying behaviors and animal abuse. The specific aims of the current study were to (1) determine the proportions of adolescents who engaged in animal abuse and bullying behaviors, (2) investigate sex differences in animal abuse and bullying behaviors, and (3) determine the proportions of adolescents who reported experiencing victimization by peers and who witnessed animal abuse perpetrated by others. We hypothesised that, in addition to age and sex, adolescents' reported engagement in animal abuse and bullying behaviors would be predicted by their reported witnessing of animal abuse, experiences of a conflictual family environment, and experiences of being victimized by peers.

2. Method

2.1. Participants

A total of 249 adolescents (144 females) were recruited from three participating secondary government schools based in the metropolitan area of Melbourne, a large Australian city. Mean (*SD*) age was 13.8 (1.26) years for males, and 13.7 (1.22) years for females.

Only students with parental consent to participate were involved in the study. Distribution of approximately 2200 explanatory statements resulted in an overall parent consent rate of 11.32%. This is consistent with other recent studies involving active consent in such schools (e.g., Betts, Gullone, & Allen, 2008). Over 93% of respondents were born in Australia and over 93% reported having animals or pets at home.

2.2. Measures

Self-report measures were utilized in the present study as they have been found to be a valid method for assessing bullying (Smith & Myron-Wilson, 1998) and animal abuse (Youngstrom, Loeber, & Stouthamer-Loeber, 2000).

2.2.1. Animal abuse

The Physical and Emotional Tormenting against animals scale (PET; Baldry, 2004) consists of five items that measure abuse against animals (harming, tormenting, bothering, hitting, and being cruel; example item: "Have you ever been cruel to an animal?") and four items that measure the witnessing of animal abuse as perpetrated by father, mother, peers, or other adults. An example item is "Has your father ever harmed an animal, for example by hitting, grabbing, pushing or in any other way causing harm to the animal?"

Respondents use a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*very often*) to indicate how often they have engaged in or witnessed others engage in the specified behaviors. Ratings for the five items measuring animal abuse are summed to obtain a total *animal abuse* subscale score. This subscale has been demonstrated to have good internal consistency (Cronbach's $\alpha = .84$). Providing support for its concurrent validity, Baldry (2004) reported a significant correlation with item 15 (animal abuse item) of the Child Behavioral Checklist (CBCL; Achenbach & Edelbrock, 1983). Cronbach's alpha in the present study was .70.

A total *witnessing of animal abuse* score is obtained by totalling the four items assessing incidents of witnessing animal abuse. Internal consistency for the *witnessing of abuse* subscale has been shown to be adequate ($\alpha = .69$, Baldry, 2004). In the present study Cronbach's alpha was found to be identical to that reported by Baldry (i.e., $\alpha = .69$).

2.2.2. Bullying and victimization

Four items from the 41-item Peer Relations Questionnaire (PRQ; Rigby & Slee, 1993) were used to assess if, and to what extent, the student had been bullied or victimized and if, and to what extent, the student had participated in bullying another individual whilst at school. Another two items taken from the PRQ assessed the demographic variables of age and sex. As with the current study, previous research has used only subsets of items from the PRQ (e.g., Bond, Wolfe, Tollit, Butler, & Patton, 2007).

Frequency of victimization was assessed using two items. On the first, the student indicated if he/she had been bullied in the past year using a four point scale (1 = *Never*; 2 = *Yes, only once*; 3 = *Yes, a few times*; 4 = *Yes, lots of times*). On the second, the student endorsed the frequency of experienced victimization in the past year on a six-point scale (1 = *everyday*; 2 = *most days*; 3 = *one or two days a week*; 4 = *about once a week*; 5 = *less than once a week*; 6 = *never*). These two items were summed (the second was reverse coded) to yield a total frequency score. Total scores range from 2 = 'never' to 10 = 'lots of times and/or everyday'. Reliability analysis for the victimization scale with the present sample yielded a Cronbach's alpha coefficient of .81. Moderate correlations

(girls $r = .41$; boys $r = .45$) between measures of self-reported victimization from the PRQ and indices of victimization based on peer evaluations have been reported (Rigby, 1998).

Engagement in bullying was assessed with an additional two items from the PRQ. The first item required that respondents indicate the frequency with which they had engaged in bullying as an individual, using a 5-point Likert-type scale (1 = *I haven't on my own bullied anyone this year* to 5 = *I have on my own bullied someone several times a week*), and the second item required that respondents indicate the frequency with which they had engaged in bullying as part of a group, also on a 5-point Likert scale (1 = *I haven't been part of a group that bullied anyone this year* to 5 = *I have been part of a group that bullied someone several times a week*). These two scores were summed to give a measure of individual or group participation in bullying, with scores ranging from 2 = 'never bullied someone either alone or as part of a group' to 10 = 'have bullied someone several times a week both alone and as part of a group' (Cronbach's $\alpha = .72$). Percent agreement between the PRQ bullying scale and the Gatehouse Bullying Scale (GBS) has been shown to be high, with moderate agreement adjusted for chance ($\kappa = 0.5$; Bond et al., 2007).

2.2.3. Family conflict

The Family Environment Scale (FES; Moos & Moos, 1986) was used to examine respondents' perceptions of their family characteristics and functioning. Ten subscales consisting of 90 questions assess dimensions of personal growth, family relationship, and family organization. Respondents indicate if each dimension is true or false for his/her family environment. For the purposes of this study, only the nine-item Conflict subscale, which assesses the amount of open aggression and anger that is typical of the family, was administered (Example item: "Family members sometimes get so angry they throw things."). With four items being reverse scored, the possible range of scores for this subscale is 0 to 9.

Moos and Moos (1986) have reported adequate to good 8-week test–retest reliabilities for the Conflict subscales of the FES. The Conflict subscale also has adequate internal consistency, $\alpha = .72$ for an Australian adolescent sample (Boyd, Gullone, Needleman, & Burt, 1997). In the present study, internal consistency was similar to that reported by Boyd et al. (1997) with a Cronbach's alpha coefficient of .76. Moos and Moos (1986) report extensive evidence for the construct, concurrent, and predictive validity of the FES scales. With respect to construct validity, Moos and Moos (1986) reported FES Conflict to be positively associated (average $r = .49$) with an index of family arguments composed of the number of areas in which family members report disagreements.

2.3. Procedure

Prior to data collection, approval was obtained from the university ethics committee and the Victorian Department of Education and Training. Following this, the principals of selected schools were sent an information pack about the study which included copies of explanatory statements, consent forms, and questionnaire forms.

All parents of adolescents in participating schools and nominated classes were provided with an explanatory statement and consent form either via their children or by mail from the researcher, depending on the policy of the participating school. Participants in this study were required to return signed parental consent forms and to themselves provide written consent before taking part in the study. The questionnaires were completed on a group basis in a quiet classroom at the participant's school and were completed during school hours. Administration of the measures was counterbalanced to control for possible order effects.

3. Results

Prior to conducting statistical analyses, integrity issues related to the data were examined. Eight participants did not complete full sections of the questionnaires and were deleted from subsequent analyses, reducing the overall sample size from 249 to 241 (102 males, $M = 13.8$, $SD = 1.26$ years, and 139 females, $M = 13.8$, $SD = 1.21$ years). Given that other missing data (20 values representing .001% of data) were randomly scattered across cases and questionnaires and the proportion was very low, missing item data were replaced via item mean substitution (Tabachnick & Fidell, 2001). To detect possible outliers, standardized scores were computed for the total scores of each variable. Standardized scores in excess of ± 3.29 were identified as outliers and were adjusted to be within the normal curve through truncation.

Table 1

Mean (and *SD*) reported incidents of animal abuse, bullying, witnessing animal abuse, victimization and family conflict by male and female participants

	Male <i>N</i> = 102	Female <i>N</i> = 139	<i>t</i> (<i>df</i> = 239)
Animal abuse (range 5–25)	6.14 (1.68)	5.74 (1.24)	2.01*
Bullying behaviours (range 2–10)	2.64 (.95)	2.60 (1.03)	0.31
Witnessing animal abuse (range 5–25)	5.64 (2.19)	5.41 (1.91)	0.86
Victimization (range 2–10)	3.89 (1.99)	3.57 (1.90)	1.28
Family conflict (range 0–9)	2.66 (2.21)	2.91 (2.48)	–0.83

* $p < .025$, one-tailed.

Table 2

Mean (SD) and percentage of participants' reported frequency of types of perpetration of animal abuse and witnessing of animal abuse by different perpetrators (N = 241)

Item	M	SD	Percentage of responses				
			Never	Hardly ever	Sometimes	Often	Very often
Hit	1.29	.58	77.6	15.8	6.6	0	0
Bother	1.28	.67	80.9	12.4	4.6	1.7	0.4
Hurt	1.19	.53	85.9	10	3.7	0	0.4
Torment	1.15	.48	88.4	9.1	1.2	1.2	0
Cruel	1.04	.27	97.1	2.1	0.4	0.4	0
<i>Witnessing abuse</i>							
By adult	1.61	.88	58.9	25.3	12.9	1.2	1.7
By friend	1.43	.79	71.4	18.3	7.9	1.2	1.2
By father	1.37	.85	78.8	12.4	4.1	2.5	2.1
By mother	1.13	.46	90	7.5	2.1	0	0.4

3.1. Descriptive statistics

Table 1 presents the means and standard deviations for animal abuse, bullying, witnessing of animal abuse and bullying victimization by sex. Not surprisingly, mean scores were skewed toward the lower end of the possible range of scores for all variables although given the restricted possible range, the variance for all variables is quite large as can be seen from the standard deviations. Independent-samples *t*-tests (one-tailed) investigating sex differences yielded a significant difference only for animal abuse scores with boys being more likely than girls to engage in animal abuse ($p < .025$).

Table 2 presents the percentage of adolescents who reported engaging in the each type of animal abuse assessed, as well as the percentages of adolescents who witnessed acts of animal abuse by different perpetrators. Overall, 20.6% of adolescents reported having engaged in animal abuse at least "sometimes" and 37.3% of adolescents reported witnessing abuse by an adult, a friend, their father or mother at least "sometimes". Engagement in individual and/or group bullying behaviors on at least one occasion in the past year was reported by 17.8% of adolescents, while 29.4% of adolescents reporting having been bullied by a student at least once in the past year.

3.2. Pearson's correlations among study variables

Pearson correlation coefficients between the study variables presented in Table 3 show that participant age was significantly positively related to animal abuse and family conflict scores, but not to any of the other variables. As expected, animal abuse and bullying behavior were positively correlated. Also noteworthy is the significant positive correlation between witnessing of animal abuse and engagement in animal abuse, as well as the significant positive correlation between engaging in animal abuse and in bullying behavior. Further, family conflict was found to be significantly positively correlated to engagement in animal abuse, exposure to animal abuse, and bullying victimization.

3.3. Multiple regression analyses

Consistent with previous research, in the current sample the animal abuse and bullying variables were positively skewed. To compensate for the skewness, responses to each of the 5 items relating to animal abuse were recoded so that responses of *Never* previously coded as 1 were coded as 0, and the remaining responses (*Hardly ever* to *Very often*) were coded as 1. Likewise, responses of *Never* on the two items assessing engagement in bullying were recoded to 0, and all other responses (*Sometimes* to *Several times*) were recoded to 1.

Two separate hierarchical multiple regression analyses, one predicting scores on the animal abuse variable and the other predicting scores on the bullying variable, were conducted to examine the unique contributions of demographic (sex, age) and

Table 3

Intercorrelations between scores for engagement in animal abuse, engagement in bullying, witnessing of animal abuse, experiencing of victimization, and perception of family conflict (N = 241)

Variable	Animal abuse	Bullying	Witness	Victimization	Conflict
Age	.17**	-.01	.06	-.05	.22**
Animal abuse		.22**	.43**	.18**	.32**
Bullying			.23**	.21**	.11
Witness abuse				.28**	.39**
Victimization					.17**

** $p < .01$ (two-tailed).

Table 4
Summary of hierarchical multiple regression analysis predicting animal abuse ($N = 241$)

Variable	<i>B</i>	<i>SE B</i>	<i>b</i>	<i>t</i>
Age	.10	.05	.12	2.08*
Sex	-.17	.12	-.08	-1.40
Conflict	.05	.03	.11	1.74
Witnessing animal abuse	.36	.05	.41	6.66***
Victimization	.02	.03	.05	.76

Note. $R = .52$, $R^2 = .265$, Adjusted $R^2 = .249$, intercept = -1.0 .

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

contextual factors (bullying victimization, witnessing of animal abuse, and family conflict). These five predictor variables were entered hierarchically in four blocks – Step 1: sex, age; Step 2: family conflict; Step 3: witnessing animal abuse; and Step 4: bullying victimization.

Table 4 displays results for the regression analysis with animal abuse as the dependent variable. Sex and age accounted for 3.4% of the total variance in animal abuse. In the second step, family conflict significantly increased the explained variance, adjusted $R^2 = .10$, $F_{in}(3, 237) = 9.96$, $p < .001$. In step 3, witnessing of animal abuse also added significantly to the model, adjusted $R^2 = .25$, $F_{in}(4, 236) = 21.08$, $p < .001$, but bullying victimization entered at step 4 was not a significant predictor. The full model accounted for 24.9% of the total variance in animal abuse, $F_{in}(5, 235) = 16.95$, $p < .001$.

Table 5 shows the outcomes of the analysis with bullying as the dependent variable. Sex and age, entered in step 1, were not found to be significant predictors nor was family conflict entered in step 2. However, witnessing of animal abuse, entered in step 3, significantly increased the explained variance of the model, adjusted $R^2 = .08$, $F_{in}(4, 236) = 6.18$, $p < .001$. In the fourth step, victimization through experiencing bullying was added to the model, which also significantly increased the variance of the model, adjusted $R^2 = .11$, $F_{in}(5, 235) = 6.83$, $p < .001$. The full model accounted for 11% of the total variance in bullying.

4. Discussion

The aims of the current study were to determine the proportions of a community sample of adolescents who engaged in animal abuse, bullying behaviors, experienced bullying victimization, and who had witnessed animal abuse perpetrated by other individuals as well as age and sex relationships with these variables. We also aimed to examine whether bullying and animal cruelty could be predicted by the same variables.

The measures used to assess the variables of concern demonstrated good reliability and validity and were similar to those reported in earlier studies. On the whole, 20.6% of adolescents reported having engaged in animal abuse at least “sometimes”, which is consistent with reports by others (Flynn, 2000b; Miller & Knutson, 1997). We also found a significant positive association between animal abuse and age and, consistent with past research, boys reported engaging in animal abuse behaviors significantly more frequently than girls (Flynn, 1999). Not surprisingly, more severe animal abuse behaviors were endorsed with lower frequency than less severe behaviors.

A total of 37.3% of adolescents reported witnessing abuse at least “sometimes”. Interestingly, responses related to the “very often” category received the highest percentage endorsement (2.1%) for witnessing of father animal abuse and the “sometimes” response received the highest endorsement (12.9%) for witnessing animal abuse perpetrated by an “adult”. Although the proportion of adolescents who reported witnessing animal abuse is somewhat lower than that found in previous studies (Flynn, 2000a; Henry, 2004a; Thompson & Gullone, 2006), it is likely that the difference is related to the measure used.

Engagement in individual and/or group bullying behaviors on at least one occasion in the past year was reported by 17.8% of adolescents. This is consistent with past research involving over 38,000 Australian children (Rigby, 1998). However, boys and girls did not differ significantly in engagement of bullying behaviors as would have been expected on the basis of past studies. This may be related to the fact that, in contrast to the current study, previous studies reporting a sex difference have used scales that define specific bullying behaviours (e.g., Bosworth, Espelage, and Simon, 1999). With regard to bullying victimization, 29.4% of

Table 5
Summary of hierarchical multiple regression analysis predicting bullying behaviors ($N = 241$)

Variable	<i>B</i>	<i>SE B</i>	<i>b</i>	<i>t</i>
Age	-.01	.04	-.02	-.26
Sex	-.06	.09	-.04	-.63
Conflict	-.01	.02	.03	-.40
Witnessing animal abuse	.16	.04	.26	3.89***
Victimization	.07	.02	.19	2.94**

Note. $R = .36$, $R^2 = .13$, Adjusted $R^2 = .11$, intercept = $.31$.

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

adolescents reported having been victimized on their own or as part of a group at least on one occasion in the past year. However, lack of specificity in assessment of victimization behaviours limits comparison with previous research.

Regarding our examination of whether bullying and animal abuse would be predicted by the same variables, our findings indicated that the witnessing of animal abuse was a significant predictor in both analyses. However, while engagement in animal abuse was significantly predicted by family conflict, bullying behavior was significantly predicted by bullying victimization. Thus, the present findings indicate the common predictor of witnessing of animal abuse for both perpetration of animal abuse and engagement in bullying behavior. This finding is consistent with past research and indicates that exposure to violence is a reliable and important predictor of aggressive behavior in youth (see [Shahinfar et al., 2001](#)).

Several proposals have been put forth to explain the mechanisms through which a victim or witness of violence may subsequently express violence toward others. One argument is that children who feel victimized, disturbed or abused may seek to gain control over another who is less powerful than themselves, be they human or non-human ([Ascione, 1999](#)). Others have proposed that a youth's development of empathy may become disrupted as a result of the experiences described above, leading to lower than normative empathy levels. Thus, such experiences may promote a callous disregard for the welfare of others ([Ascione, 1999](#); [Lahey, Waldman, & McBurnett, 1999](#); [Thompson & Gullone, 2003](#)). It has also been proposed that a child who grows up in a home where violence such as animal abuse is common, may learn to generalize home violence to other areas of their lives ([Faver & Strand, 2003](#); [Flynn, 2000b](#); [Pelcovitz, Kaplan, DeRosa, Mandel, & Salzinger, 2000](#)), including being abusive toward peers.

Overall, the results of the present study indicate that animal abuse and bullying behavior are relatively common adolescent behaviors. Importantly, as has been shown in studies with adult samples (e.g., [Arluke et al., 1999](#); [Gullone & Clarke, 2008](#)), the current findings provide further empirical support for co-occurrence of aggressive behaviors toward animals and humans in an adolescent sample. Of particular importance, our findings indicate that adolescents' abuse of animals and their bullying of peers may be related to witnessing of animal abuse. Being victimized was also found to play an important predictive role for bullying behavior. On the whole, these findings provide support for the proposal that dysfunctional behavior patterns in youth may have antecedents in the witnessing of violence and experiences of victimization ([Schwartz et al., 1997](#)). Future research should investigate motivations for children's engagement in abuse toward animals or bullying of peers in an effort to better understand whether common cognitive or affective variables are also involved. Moreover, future research into childhood animal abuse may find direction by drawing on the wider aggression literature. By examining child and adolescent animal abuse within a human aggression framework, new insights into developmental pathways to this and other aggressive behaviors may be uncovered.

Notwithstanding these important findings, there are several limitations of this study. Consistent with widespread declining active consent response rates ([Tourangeau, 2004](#)), this study recorded a low response rate. The rather low response rates in the present study may be related to the study subject matter or to the requirements made by the university ethics committee, the latter of which involved inclusion of representative questionnaire items in the explanatory statements for parents. When given out of context, these items, may have artificially inflated the negative and intrusive tone of the research. It is also likely that the low response rate resulted in a less than optimally generalizable sample.

In addition, reliance on self-reports entails a number of intrinsic threats to validity, including self-selection biases and problems with truthfulness, accuracy and recall ([Rosenbaum, Rabenhorst, Reddy, Fleming, & Howells, 2006](#)). Animal abuse and bullying are sensitive topics and may have prompted socially desirable responses. An attempt to address this potential problem was made by assuring respondents of their anonymity. Of relevance to the validity of the method used, past research examining the agreement between caregiver reports and self-reports has found that caregiver reports tend to underestimate the prevalence of animal abuse. Hence, it has been argued that self-reports, despite their potential limitations, remain the most valid available method of assessment ([Boat, 1997](#); [Dadds et al., 2004](#); [Youngstrom et al., 2000](#)).

Criterion-related validity for aggression scales is difficult to establish due to the absence of a standard definition for aggressive behavior. [Henry \(2006\)](#) suggested that self-report item responses are more closely associated with observed behavioral measures when such items are narrowly and specifically focused on specific aggressive behaviors, as was the case in the present study with regard to the assessment of animal abuse. Finally, no conclusions can be drawn as to the order of occurrence of exposure to violence, aggressive behavior, and victimization. Further research employing a longitudinal design is required to examine such a proposal.

In conclusion, animal abuse and bullying behaviors are not uncommon adolescent behaviors, and they appear to be more common among youth who witness other people committing animal abuse and who are themselves victimized. The findings that animal abuse is a co-occurring behavior with other problem behaviors in youth, and that exposure to animal abuse is associated with increased aggression to both human and non-human animals are important. Recent research on aggression has implicated exposure to interpersonal, community, and media aggression and violence as precursors of childhood aggression behaviors. On the basis of the present findings, animal abuse can be added to this list. The present findings should be informative and useful for professionals who are regularly in contact with youth who are believed to have been exposed to acts of animal abuse or who are observed to either harm animals or their peers. Not only are such behaviors possible indicators of other problem behaviors, they are potential signals that the home environments of the youths may not be optimally safe ones and formal assessment may therefore be indicated.

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