

Ownership of High-Risk ("Vicious") Dogs as a Marker for Deviant Behaviors

Implications for Risk Assessment

Jaclyn E. Barnes

Cincinnati Children's Hospital Medical Center, Ohio

Barbara W. Boat

University of Cincinnati, Ohio

Frank W. Putnam

Cincinnati Children's Hospital Medical Center, Ohio

Harold F. Dates

Cincinnati Society for the Prevention of Cruelty to Animals, Ohio

Andrew R. Mahlman

Cincinnati Society for the Prevention of Cruelty to Animals, Ohio

This study examined the association between ownership of high-risk ("vicious") dogs and the presence of deviant behaviors in the owners as indicated by court convictions. We also explored whether two characteristics of dog ownership (abiding licensing laws and choice of breed) could be useful areas of inquiry when assessing risk status in settings where children are present. Our matched sample consisted of 355 owners of either licensed or cited dogs that represented high or low-risk breeds. Categories of criminal convictions examined were aggressive crimes, drugs, alcohol, domestic violence, crimes involving children, firearm convictions, and major and minor traffic citations. Owners of cited high-risk ("vicious") dogs had significantly more criminal convictions than owners of licensed low-risk dogs. Findings suggest that the ownership of a high-risk ("vicious") dog can be a significant marker for general deviance and should be an element considered when assessing risk for child endangerment.

Keywords: *high-risk dogs; high-risk behavior; criminal convictions; child maltreatment; risk assessment*

Risk assessment is of interest to professionals who work in areas of violence prevention, assessment and treatment of interpersonal violence, and prosecution of crimes against persons and property. The study of risk factors can help identify persons or settings where the greatest risk of harm to self or others occurs and assist in developing appropriate interventions. It is well known that one marker of risk to do harm to self, others, or property is engaging in deviant behavior. A definition of *deviant behavior* or *deviance* is offered by Jessor and Jessor (1977): *Deviance* is “behavior that is socially defined as a problem, a source of concern, or as undesirable by the norms of conventional society and the institutions of adult authority, and its occurrence usually elicits some kind of social control response” (p. 33). By definition, all deviant behaviors violate conventional standards of behavior.

Research has firmly established that a wide range of deviant behaviors are positively correlated with one another (e.g., Akers, 1984; Donovan & Jessor, 1985; Elliott & Huizinga, 1984; Johnston, O’Malley, & Eveland, 1978; Osgood, Johnston, O’Malley, & Bachman, 1988). Deviance can be viewed as a unified phenomenon with various behaviors serving as alternative manifestations of a more general tendency (Osgood et al., 1988). This view is also known as the deviance generalization hypothesis (Arluke, Levin, Luke, & Ascione, 1999). For example, persons who engage in illegal or antisocial acts in one arena (e.g., robbery, arson) may also be likely to engage in antisocial acts in another arena (e.g., domestic violence, child abuse).

There has been ongoing interest in exploring the relationship between violence against animals and violence against humans (Felthous & Kellert, 1986; Hensley & Tallichet, 2005; Wright & Hensley, 2003). Arluke et al. (1999) explored the applicability of the deviance generalization hypothesis to the association between animal abuse and a host of antisocial behaviors, including violence. They compared the records of 135 animal abusers and 153 control participants to investigate whether animal abusers commonly “graduate” from violence against animals to violence against humans (Wright & Hensley, 2003) or commit crimes against animals and humans in no particular time order. They concluded that, rather than animal abuse subsequently leading to violence toward humans, the results were more in line with the deviance generalization hypothesis. Animal abuse was only one of many antisocial behaviors in a repertoire of deviant behaviors ranging from property to personal crimes. However, an association between animal abuse and antisocial behaviors was found. In particular, animal abusers were 5.3 times more likely to have a violent criminal record than control

participants, 4 times more likely to be arrested for property crimes, 3.5 times more likely to be arrested for drug-related offenses, and 3.5 times more likely to be arrested for disorderly behavior.

Our goal was to extend the Arluke et al. (1999) study by looking at two plausible markers of social deviance, owning a high-risk (“vicious”) dog and owning an unlicensed dog, as risk factors for being convicted of other “deviant” behaviors in a court of law. One can argue that choosing to own a high-risk (“vicious”) dog is a marker of social deviance because a high-risk (“vicious”) dog is, by definition, a socially deviant animal. Definitions of a *vicious dog* vary among municipalities. Most animal control ordinances define a dog as “vicious” when the dog, without provocation, has bitten a human being or killed or maimed a domestic animal. In addition, some breeds, namely Pit Bulls, may qualify as “vicious dogs” simply by reputation, not because a specific dog has behaved in a harmful manner. Some municipalities have breed ban laws, and some states or municipalities have breed-specific laws. For example, Ohio requires Pit Bull owners to carry canine liability insurance in the amount of at least \$100,000. In Santa Monica, California, all Pit Bulls must be leashed and muzzled when out in public. There are many problems inherent in identifying certain breeds such as Pit Bulls, Rottweilers, and German Shepherds as dangerous or vicious, and cogent reasons to identify the owners of vicious dogs as the problem and focus of intervention (Borchelt, Lockwood, Beck, & Voith, 1983). However, the aforementioned breeds were the most frequently implicated in a review of 109 fatal dog attacks by Borchelt (1983). For some persons, owning a dog that has a reputation for aggression is considered a highly desirable feature. To be more inclusive of types of dogs, we will use the term *high-risk dog* rather than *vicious dog* in the current study. We define a dog as *high-risk* according to Section 955.11 of the Ohio Revised Code for “vicious dog”:

A “vicious dog” means a dog that, without provocation, has (i) killed or caused serious injury to any person, (ii) has killed another dog, or (iii) belongs to a breed that is commonly known as a pit bull dog. The ownership, keeping or harboring of such a breed of dog shall be evidence of the ownership of a vicious dog. A “vicious dog” does not include (i) a police dog that has killed or caused serious injury to any person or to any person while the police dog is being used to assist one or more law enforcement officers in the performance of their official duties, or (ii) a dog that has killed or caused serious injury to any person while a person was committing or attempting to commit a trespass or other criminal offense on the property of the owner, keeper, or harbinger of the dog. “Without provocation” means that a dog was

not teased, tormented, or abused by a person, or that the dog was not coming to the aid or the defense of a person who was not engaged in illegal or criminal activity and who was not using the dog as a means of carrying out such activity. The definition of a *high-risk dog* in the current study included “vicious” dogs by breed (e.g., Pit Bulls) or by dangerous or “vicious” actions (e.g., any dog that had bitten, attacked or killed a person or other animal).

The second marker of social deviance we selected was ownership of an unlicensed dog. Obtaining a license for one’s dog is the responsibility of the owner and is mandated by law. However, dog owners give a variety of reasons for not buying a dog license including not wanting authorities to know they have a dog that is deemed high risk by law, or believing the law is either unenforceable or unnecessary. Furthermore, insurance policies often are required to license a high-risk breed of dog. Some owners license a HR dog such as a Pit Bull as another breed, such as Boxer, to avoid having to comply with liability regulations or attempt to hide the dog if there is a ban against owning the breed.

The purpose of the current study was to examine relationships between ownership of a HR dog and the presence of deviant behaviors in the owners as indicated by court convictions. Specifically we explored whether:

1. Owners of a HR breed of dog would have more court convictions than owners of a low-risk breed of dog.
2. Owners of unlicensed dogs would have more court convictions than owners who have obtained licenses for their dogs.
3. Ownership of a HR dog would be a better predictor of general deviance (more court convictions) than ownership of an unlicensed dog.

Method

Sample

The sample consisted of 355 dog owners in Hamilton County. Hamilton County is located in southwest Ohio, covering 413 square miles with a rural and suburban population of 845,303. The participants were either licensed or cited owners of high-risk or low-risk dogs. These four categories were divided into four group clusters: (a) owners of low-risk licensed dogs (LRL; $n = 94$), (b) owners of low-risk cited dogs (LRC; $n = 94$), (c) owners of high-risk cited dogs (HRC; $n = 94$), and (d) owners of high-risk licensed dogs (HRL; $n = 73$). Each group was matched on gender and zip code.

Table 1
Frequency Distribution of All Dog Breeds in Sample
(data in percentages)

Breed (N)	Low-Risk Licensed	Low-Risk Cited	High-Risk Licensed	High-Risk Cited
Akita (3)				100
American Bulldog (4)		100		
Ahra (1)				100
Australian Cattle Dog (1)	100			
Beagle (20)	60	40		
Belgian Tervuren (1)	100			
Bichon Frise (1)	100			
Bloodhound (2)	50	50		
Boxer (7)	29	57		14
Chihuahua (4)	50	50		
Chinese Crested Dog (1)		100		
Chow (3)				100
Collie (18)	44	56		
Dachshund (6)	67	33		
Dalmatian (7)	43	57		
English Setter (1)		100		
Golden Retriever (6)	67	33		
Hound (13)	54	46		
Jack Russell (1)		100		
Labrador Retriever ^a (1)				100
Lhasa Apso (1)	100			
Miniature Pinscher (3)	67	33		
Mixed breeds (8)		100		
Newfoundland (1)		100		
Pekinese (1)		100		
Pit Bull (153)			48	52
Pointer (1)		100		
Pomeranian (2)		100		
Poodle (17)	65	35		
Pug (1)	100			
Redbone (1)		100		
Rottweiler (4)				100
Samoyed (2)		100		
Schipperke (1)	100			
Schnauzer (6)	83	17		
Shar-Pei (2)		100		
Shetland Sheepdog (1)	100			
Shih Tzu (6)	17	83		

(continued)

Table 1 (continued)

Breed (N)	Low-Risk Licensed	Low-Risk Cited	High-Risk Licensed	High-Risk Cited
Spaniel (9)	67	33		
St. Bernard (3)	33	67		
Terrier (24)	63	37		
Terripoo (1)		100		
Vizsla (2)	50	50		
Weimaraner (4)	50	25		25

a. The Labrador Retriever attacked and killed another dog; thus it was categorized as a high-risk cited animal.

Owners of cited dogs were selected from the Cincinnati Society for the Prevention of Cruelty to Animals (SPCA Cincinnati) citations for the years 2000 through 2002. Reasons for citations included the following: failed to file application for registration of dog (44.7%), failed to keep dog confined on premises (41.5%), failed to obtain liability insurance for vicious dog (11.7%), unknown (1%), failed to muzzle vicious dog (0.5%), killed neighbor's dog (0.5%). The breed of dog high-risk (HR) or low-risk (LR) was used to categorize HRC and LRC dog owners. HR dogs according to the SPCA and insurance companies are breeds that include Pit Bulls, Rottweilers, Akitas, and Chows. LR dogs are breeds that exclude the above. The most frequent breeds in our sample were Terriers, Beagles, Collies, and Poodles. Table 1 presents the frequency distribution of breeds of dogs in our sample ($N = 355$).

Owners of licensed dogs were selected from Hamilton County of Ohio records of licensed dog owners, years 2000 through 2002.

The four groups of owners, LRL, LRC, HRL, and HRC, were matched on gender and residential zip code to control for variables that may contribute to higher rates of crime. Each nonoverlapping group consisted of 51 females and 43 males. We were unable to match the owners of HRL dogs (namely Pit Bulls) as accurately on gender and zip code because owners of HR breeds rarely register their dogs, resulting in a smaller sample size. For example, in 2001, Hamilton County SPCA recorded information for 51,404 licensed dog owners of which only 48 (.09%) were Pit Bull owners. To ensure, however, that the group of HRL owners was not different from the other three groups, t tests were run on the participants' gender and revealed no significant differences.

Convictions

Data regarding criminal convictions and traffic citations for each of the groups were collected from the Hamilton County Clerk of Courts' Web site (www.courtclerk.org/cociw070.htm). A case inquiry was run on each dog owner by entering his or her first and last name. To confirm the identity of the owner, the name, address, and birth date were matched to the information in the citation and licensing databases. If the dog owners' name was not in the Hamilton County Clerk of Courts' database it was assumed, for the purposes of the current study, that the participant had no criminal history. However, it is possible that the owner has convictions or citations in other jurisdictions.

The Clerk of Courts' data on criminal convictions and traffic citations Web site were arranged into two main categories, criminal convictions and citations. Criminal convictions carry a heavier sentence than citations. These two main categories were further divided into eight subcategories with the assistance of law enforcement personnel. The categories as defined by law as *criminal convictions* included aggression (e.g., assault, disorderly conduct, criminal endangering), drugs, alcohol, domestic violence, crimes involving children (e.g., endangering children, violation of child safety restraint), and crimes involving firearms (e.g., possession of weapons, carrying a concealed weapon). The categories as defined by law as *citations* included minor traffic violations (e.g., improper turn, speeding), and major traffic violations (e.g., driving under the influence [DUI], driving under suspension).

To protect the privacy of the participants, all data collected from the Clerk of Courts' Web site and SPCA Cincinnati records were stripped of personal identifiers after data collection and the matching processes were complete. Because the data were within public domain, approval from an Institutional Review Board was not necessary.

Statistical Analysis

All data were entered into a Windows Access database and then analyzed in SPSS version 10.0. Dog owners were compared across groups on type and frequency of criminal convictions and traffic citations. On samples matched for risk and licensed status of the dog and gender of the owner, *t* tests were run for each group, and odds ratios were calculated to determine the magnitude of difference between groups. A hierarchical regression model was further run to establish which of three predictor variables—gender, license status, and risk status—accounted for most of the variance in the dependent variable, criminal convictions.

Table 2
Frequency Distribution of All Convictions and Citations

	Low-Risk Licensed (<i>n</i> = 94)	Low-Risk Cited (<i>n</i> = 94)	High-Risk Licensed (<i>n</i> = 73)	High-Risk Cited (<i>n</i> = 94)
Total number of criminal convictions and citations	23	102	166	415
Percentage of the group without criminal convictions or citations	73	1	0	0

Results

The total number of criminal convictions and traffic citations for the owners of dogs in the four categories LRL, LRC, HRL, and HRC are presented in Table 2.

Frequency distributions revealed that 100% of the owners of HR dogs had either one criminal conviction or traffic citation. Furthermore, 30% of the HRC dog owners had at least 5 criminal convictions or traffic citations (range 1-37) in comparison to the 1% of owners of LRL dog owners (range 1-6). Significant differences were found between groups for the total number of convictions and the types and of convictions. These differences are expressed as odds ratios and are presented in Table 3.

Figures 1 through 4 illustrate the percentages of criminal convictions and traffic citations between the owners of LRL, HRL, LRC, and HRC dogs. Each bar represents the percentage of the group with at least one criminal conviction or traffic citation in each category.

When differences in criminal convictions and traffic citations between the owners of HRC dogs and owners of LRL dogs were examined, owners of HRC dogs had significantly more criminal convictions and traffic citations in every category. Relative to owners of LRL dogs, owners of HRC dogs were 9.1 times more likely to have been convicted for a crime involving children, $t(186) = 2.26, p < .025$; 3.0 times more likely to have been convicted on a charge of domestic violence, $t(186) = 2.12, p < .036$; 14.1 times more likely to be convicted of crimes involving alcohol, $t(186) = 2.88, p < .000$; 7.7 times more likely to be charged with drug convictions, $t(186) = 3.99, p < .000$; 7.1 times more likely to have been cited for a major traffic violation, $t(186) = 2.91, p < .004$; and 5.8 times more likely to have been cited for a minor traffic violation, $t(186) = 4.97, p < .000$.

Table 3
Odds Ratios for High-Risk and Cited Owners Compared to Low-Risk and Licensed Owners for Criminal Convictions and Traffic Citations*

Groups	Criminal Convictions and Traffic Citations									
	Aggression	Minor Traffic	Major Traffic	Drugs	Alcohol	Domestic Violence	Crimes Involving Children	Firearms		
High-risk cited ^a vs. Low-risk licensed ^b		5.8	7.1	7.7	14.1	3.0	9.1			
High-risk cited ^a vs. High-risk licensed ^f		1.7	1.6				5.5			
Low-risk cited ^a vs. Low-risk licensed ^f	3.0	2.4	4.5		5.1		4.0			
High-risk licensed ^a vs. Low-risk licensed ^{a;g}	7.9	3.5	6.6	5.3	11.9	2.6		2.6		
High-risk cited ^a vs. Low-risk cited ^a	6.0	2.4	1.6	11.5	2.8	2.3	2.3			
High risk ^a vs. Low Risk ^d	6.8	2.8	2.5	8.0	5.4	2.4	2.8			
Cited ^a vs. Licensed ^e	2.7	2.0		1.5	1.8	1.3	5.8			

a. The group which is more likely to have traffic citations or criminal convictions.

b. Results of the *t* test are represented in Figure 1.

c. Results of the *t* test are represented in Figure 2.

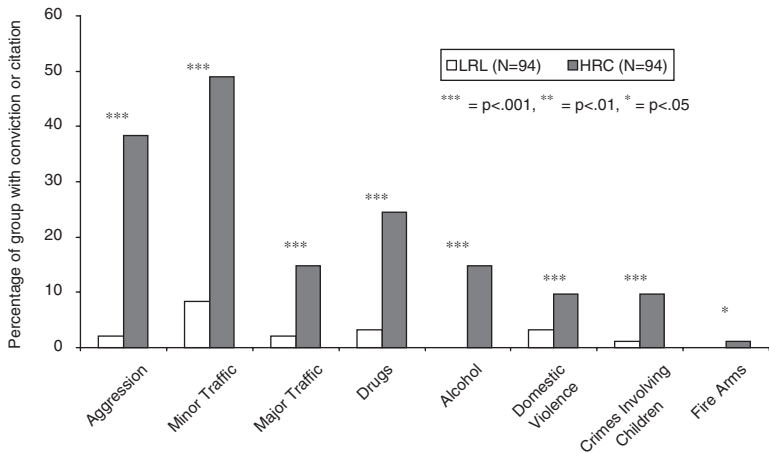
d. Results of the *t* test are represented in Figure 3.

e. Results of the *t* test are represented in Figure 4.

f. Analyses were controlling for risk status of the dog (licensed status was the key variable).

g. Analyses were controlling for licensed status of the dog (risk status was the key variable).

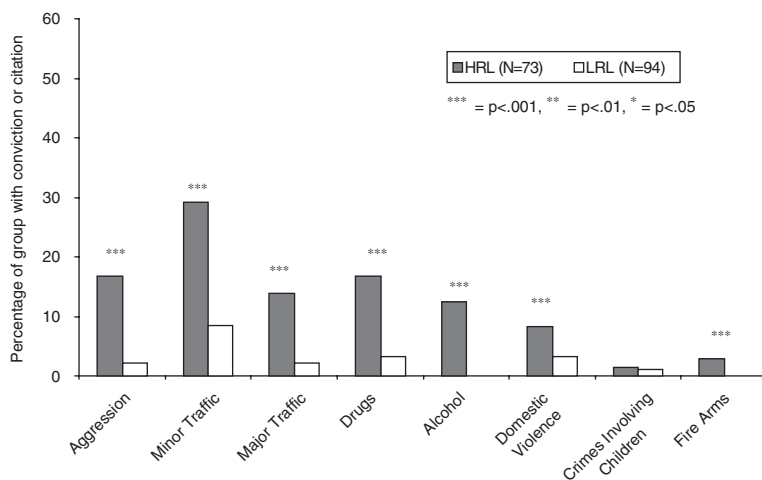
Figure 1
Differences in Criminal Convictions and Traffic Citations
Between Owners of Low-Risk Licensed (LRL) Dogs and
Owners of High-Risk Cited (HRC) Dogs



Controlling for the HR status of the dog, we examined differences in criminal convictions and traffic citations between the owners of HRC dogs and owners of HRL dogs. The analysis revealed that the cited owners were 5.5 times more likely to have been convicted for a crime involving children than licensed owners, $t(150) = 1.65$, $p < .001$; 1.7 times more likely to have been cited for a minor traffic violation, $t(150) = 2.08$, $p < .013$; and 1.6 times more likely to have been cited for a major traffic violation, $t(150) = 1.57$, $p < .006$.

Controlling for the LR status of the dog, we examined differences in criminal convictions and traffic citations between owners of LRL dogs and LRC dogs. The analysis revealed that the cited owners were 5.1 times more likely to have an alcohol-related conviction, $t(186) = 1.36$, $p < .000$; 4.0 times more likely to have been convicted for a crime involving children, $t(186) = 1.36$, $p < .001$; 4.5 times more likely to have been cited for a major traffic violation, $t(186) = 2.20$, $p < .000$; 2.4 times more likely to have been cited for a minor traffic violation, $t(186) = 2.72$, $p < .000$; and 3.0 times

Figure 2
Differences in Criminal Convictions and Traffic Citations
Between Owners of High-Risk Licensed (HRL) Dogs and
Owners of High-Risk Cited (LRC) Dogs



more likely to have been convicted of an aggressive crime, $t(185) = 1.38$, $p < .000$). Neither group had any firearm convictions.

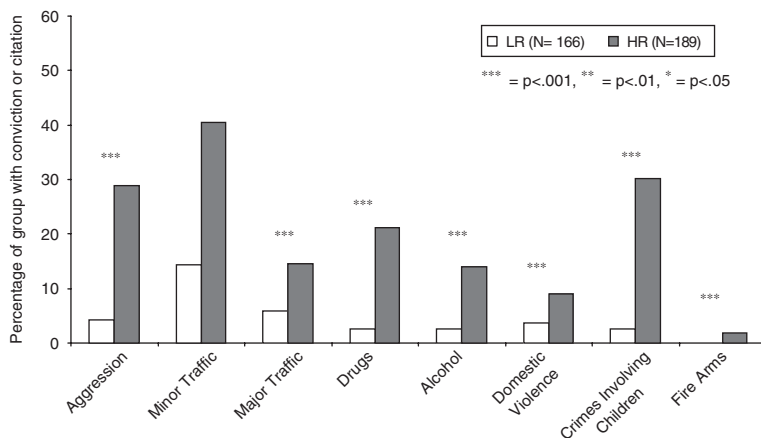
Controlling for the licensed status of the dog, we examined differences in criminal convictions and traffic citations between the owners of HRL dogs and owners of LRL dogs. The analysis revealed that owners of HR dogs had significantly more criminal convictions and traffic citations in all categories except crimes involving children. Owners of HRL dogs were 7.9 times more likely to have had at least one aggressive conviction than owners of LRL dogs, $t(164) = 2.66$, $p < .000$; 2.6 times more likely to have been convicted of domestic violence, $t(164) = 1.83$, $p < .000$; 2.6 times more likely to have been convicted of illegal use of a firearm, $t(164) = 1.61$, $p < .001$; 11.9 times more likely to be convicted of a crime involving alcohol, $t(164) = 2.94$, $p < .000$; 5.3 times more likely to be convicted on drug charges, $t(164) = 2.97$, $p < .000$; 3.5 times more likely to be cited with a minor traffic violation, $t(164) = 3.69$, $p < .000$; and 6.6 times more likely to be cited with a major traffic violation, $t(164) = 2.70$, $p < .000$.

Controlling for the cited status of the dog, we examined differences in criminal convictions and traffic citations between owners of LRC dogs and owners of HRC dogs. Owners of HR dogs were 2.3 times more likely to be convicted for a crime involving children, $t(186) = 1.55, p < .002$; 2.3 times more likely to have been convicted of domestic violence, $t(186) = 1.03, p < .050$; 6.0 times more likely to have been convicted of an aggressive crime, $t(186) = 4.34, p < .000$; 2.8 times more likely to have alcohol-related conviction, $t(187) = 2.08, p < .000$; 11.5 times more likely to have been convicted on drug charges, $t(187) = 4.31, p < .000$; 2.4 times more likely to have been cited for a minor traffic violation, $t(187) = 3.23, p < .000$; and 1.6 times more likely to have been cited for a major traffic violation, $t(187) = 1.17, p < .000$. Furthermore, owners of low risk licensed dogs (LRL) were 68 times more likely not to have been criminally convicted or received a traffic citation than all other types of owners: HRC: $t(187) = 15.71, p < .000$; HRL: $t(187) = 15.09, p < .000$; and LRC: $t(187) = 15.09, p < .000$.

The last two analyses examined the dog owners regardless of licensing or risk status. Figure 3 shows the differences in criminal convictions and traffic citations between the owners of LR dogs ($n = 189$) and the owners of HR dogs ($n = 166$), regardless of licensing status. Results indicated that owners of HR dogs were 6.8 times more likely to be convicted of an aggressive crime, $t(353) = 5.12, p < .000$; 2.8 times more likely to have been convicted for a crime involving children, $t(353) = 1.71, p < .001$; 2.4 times more likely to have been convicted on a charge of domestic violence, $t(353) = 1.78, p < .001$; 5.4 times more likely to have an alcohol-related conviction, $t(353) = 3.27, p < .001$; 8.0 times more likely to be charged with drug convictions, $t(353) = 5.22, p < .000$; 2.8 times more likely to have been cited for a minor traffic violation, $t(353) = 4.72, p < .000$; and 2.5 times more likely to have been cited for a major traffic violation, $t(353) = 2.73, p < .000$.

Figure 4 illustrates the differences in criminal convictions and traffic citations between the owners of cited (C) dogs ($n = 188$) and owners of licensed (L) dogs ($n = 167$) regardless of risk status. Owners of C dogs were 2.7 times more likely to be convicted of an aggressive crime, $t(353) = 2.24, p < .001$; 5.8 times more likely to be convicted for a crime involving children, $t(353) = 2.42, p < .000$; 1.3 times more likely to be convicted of domestic violence, $t(353) = 1.22, p < .013$; 1.8 times more likely to have an alcohol-related conviction, $t(353) = 1.70, p < .001$; 1.5 times more likely to have a drug-related conviction, $t(353) = 1.77, p < .001$; and 2.0 times more likely to have been cited for a minor traffic violation, $t(353) = 3.279, p < .000$. Furthermore, owners of LR dogs were 61 times more likely not to have

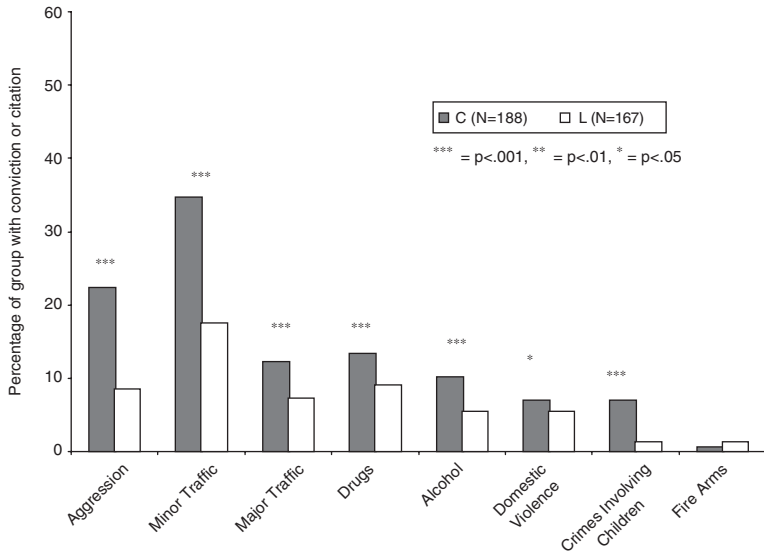
Figure 3
Differences in Criminal Convictions and Traffic Citations
Between Owners of Low-Risk (LR) Dogs and Owners
of High-Risk (HR) Dogs



been criminally convicted or received a traffic citation than owners of HR dogs, $t(353) = 9.85, p < .000$; and owners of L dogs were 78 times more likely to have no violations than owners of C dogs, $t(353) = 11.19, p < .000$.

Hierarchical regression models were tested to ascertain which of three predictor variables (gender, license status, and risk status) accounted for the most variance of the dependent variable. The first model used the total number of criminal convictions and citations as the dependent variable. In the initial step, gender was a significant predictor of criminal convictions ($b = 2.19, p < .000, R^2 = .035$). In the second step, license status was entered along with gender and proved to be a significant predictor as well ($b = 2.04, p < .001, R^2 = .066$). The R^2 change from Step 1 to Step 2 was significant, $R^2\Delta = .031, F(351,1) = 11.48, p < .01$. In the final step, risk status was added to the equation and also proved to be a significant predictor ($b = 3.44, p < .000, R^2 = .152$). The change in R^2 from Step 2 to Step 3 was also significant, $R^2\Delta = .086, F(351,1) = 35.83, p < .01$. These results demonstrate that ownership of a HR status dog is more than twice as strong a predictor of having criminal convictions and traffic citations than are gender and licensed status combined.

Figure 4
Differences in Criminal Convictions and Traffic Citations
Between Owners of Cited (C) Dogs and Owners
of Licensed (L) Dogs



The second model was tested to seek the differences in accounted variance of the three predictor variables using the “aggressive” conviction category as the dependent variable. Convictions such as assault, aggravated burglary, cruelty to animals, disorderly conduct, and resisting arrest are examples of acts that made up the aggressive conviction category. The first step revealed gender as a significant predictor for aggressive convictions ($b = .480, p < .01, R^2 = .026$). In the succeeding step, license status was a significant predictor ($b = .355, p < .05, R^2 = .040$); however, the R^2 change from Step 1 to Step 2 was not significant. When risk status was added in the final stage, it proved to be a significant predictor ($b = .763, p < .001, R^2 = .105$). The change in R^2 from Step 2 to Step 3 was significant, $R^2\Delta = .065, F(351, 1) = 26.0, p < .01$). These results reiterate what was found in the first regression; namely, ownership of a HR status dog is a much stronger predictor of

criminal convictions, specifically aggressive convictions, than gender and licensed status combined.

Discussion

Limitations

In discussing the results of the current study of the ownership of high-risk dogs as a marker for deviant behaviors, specific limitations should be kept in mind. Recruitment of persons eligible to be classified as owners of high-risk licensed dogs was limited by the small pool available in Hamilton County. Thus we were unable to match this group on zip code that controlled for neighborhood characteristics. However, when these owners were compared with the other groups on gender, we found no differences. Possible reasons for the small number of licensed Pit Bulls available to be sampled include the fact that a Hamilton County law passed to register Pit Bulls was difficult to understand and lacked the educational resources to make registration readily available to such owners. For example, it was necessary to register with the police department, surgically implant a microchip into the dog, and have the dog tattooed. The ineffectiveness of this registration program is demonstrated by the fact that during the 4 years the program was offered, only six Pit Bulls were registered in Hamilton County. As a result, a ban has now been placed on owning Pit Bulls. Instead of using breed-specific bans, recommendations from SPCA Cincinnati officials include improving licensing efforts, increasing insurance coverage in the event of attacks, and better tracking of high-risk dogs.

Other limitations of the current study entail gathering data on convictions and citations. Data on convictions and citations were obtained only within the jurisdiction of Hamilton County courts and may not reflect the full range of deviance if there were convictions in other counties or states. However, the probability is low that our low-risk licensed and low-risk cited groups had a significantly higher rate of convictions outside Hamilton County than our high-risk groups. Furthermore, the convictions and citations obtained were not necessarily concurrent with dog ownership but were accumulated over the participant's lifetime. Although the relationship between ownership of a high-risk dog and deviant behaviors was not causal, the two variables were positively correlated.

The age of the participants was not available and could not be included as a predictive factor in our regression models. Thus, correlating age with total number of convictions and citations was not possible. Finally, we did not include convictions for small claims, civil suits, and evictions. Instead, we chose to focus on deviant behaviors such as aggression; major traffic violations; drug, alcohol, and firearm violations; domestic violence; and crimes involving children. We believe these behaviors are more likely to result in harm to others and have greater relevance for risk assessment.

Deviance Generalization Hypothesis

The current study supports the deviance generalization hypothesis. High clusters of criminal behaviors were found for the C and high-risk groups of dog owners. high-risk cited dog owners had almost 10 times more total criminal offenses on their records than low-risk licensed dog owners. The average number of total criminal convictions and citations for a high-risk cited owner was 5.9 compared to an average of 0.6 convictions for a low-risk licensed dog owner. We also found a robust correlation between the total number of convictions or citations, and the number of different categories of violations. Participants with higher numbers of court convictions had a wider range of deviant behaviors including aggression, problems with drugs and alcohol, crimes involving children, and domestic violence. high-risk dogs are a part of a high-risk lifestyle and ownership of high-risk cited dogs appears to be a significant marker for general deviance.

Assessing Risk

An important focus of the current study was to determine whether two characteristics of dog ownership—abiding licensing laws and choice of breed status—are useful areas of inquiry when assessing risk status in a variety of settings, especially where vulnerable individuals live. Professionals such as child and adult protection investigators, law enforcement officers, pediatricians and medical practitioners, home visiting professionals, domestic violence investigators, and public health nurses may find it useful to be informed about the breed and specific behaviors of the dogs that share the environment with their clients. First, be aware that the dog breed, especially owning a Pit Bull, may be a risk marker. Humane professionals suggest gathering information by using an approach that expresses interest in the well-being of the animal. The professional can ask the age of the dog and

any questions about training the dog has received. Further questions and/or observations can include children's fear of the dog; verbally or physically abusive behaviors of children or adults toward the dog; availability of food, water and shelter to the dog; any marks on the dog indicating fighting, especially bite marks to the head; and whether the dog is always chained outdoors. Investigating whether there have been prior visits by animal control to check on the welfare of the dog or complaints by neighbors can provide additional information. These questions and others can help determine whether the dog has received proper care. A neglected dog can more easily become aggressive relative to a dog whose needs are adequately met.

Looking specifically at crimes against children, the types of crimes committed by our sample included child endangerment (which is often used as a charge in child abuse prosecutions), harm to a juvenile, violation of safety restraint of a child, and contributing to juvenile unruliness. High-risk and low-risk cited dog owners were 5.8 times more likely than high-risk and low-risk licensed dog owners to be convicted of a crime involving children. Of cited dog owners, 44% had failed to obtain a dog license. We suggest, regardless of dog breed, that failure to license a dog is a potential warning sign of other deviant behavior. Failure to license could signal a lack of resources in an impoverished environment for child and dog, or a calculated defiance of the law. Determining the presence of an unlicensed dog in the home where children reside should increase concerns about the child's risk for harm.

As noted earlier, it is important for professionals to ask about the breed of a dog, as risk status of the dog is the strongest predictor of aggressive criminal convictions. It is also important to note that choice of a high-risk dog breed by the owner can reflect the deviant nature of the owner. When a high-risk dog is in the possession of a high-risk citizen, one who has multiple convictions or citations, the dog is drawn into the cycle of deviance. The high-risk dog becomes a deviant possession much like a gun or a stolen vehicle. If a deviant citizen can be identified by the number of deviant possessions, the high-risk status of a dog can be a useful predictor of criminal convictions and aggressive behaviors by its owner.

One should also consider that ownership of a high-risk cited dog may be a marker of endangerment for the animal. Humane professionals note that a high-risk pet with a high-risk owner is an "at-risk" pet. Generally, if removed, the dog must be euthanized as it has no option to be adopted.

In summary, (a) failure to license a dog and (b) owning a HR breed of dog are markers of increased risk for deviant behaviors and should be included in professional assessments of risk to children or other vulnerable individuals.

References

- Akers, R. (1984). Delinquent behavior, drugs and alcohol: What is the relationship? *Today's Delinquent*, 3, 19-47.
- Arluke, A., Levin, J., Luke, C., & Ascione, F. (1999). The relationship of animal abuse to violence and other forms of antisocial behavior. *Journal of Interpersonal Violence*, 14, 963-975.
- Borchelt, P. L., Lockwood, R., Beck, A. M., & Voith, V. L. (1983). Attacks by packs of dogs involving predation on human beings. *Public Health Reports*, 98, 57-66.
- Donovan, J., & Jessor, R. (1985). Structure of problem behavior in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology*, 53, 890-894.
- Elliot, D. S., & Huizinga, D. (1984). *The relationship between delinquent behavior and ADM problems*. Boulder, CO: Behavioral Research Institute.
- Felthous, A. R., & Kellert, S. R. (1986). Violence against animals and people: Is aggression against living creatures generalized? *Bulletin of the American Academy of Psychiatry & the Law*, 14, 55-69.
- Hensley, C., & Tallichet, S. E. (2005). Learning to be cruel?: Exploring the onset and frequency of animal cruelty. *International Journal of Offender Therapy and Comparative Criminology*, 49, 37-47.
- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic Press.
- Johnston, L., O'Malley, P. M., & Eveland, L. K. (1978). Drugs and delinquency: A search for causal connections. In D. B. Kandel (Ed.), *Longitudinal research on drug use: Empirical findings and methodological issues* (pp. 137-156). Washington, DC: National Educational Resources.
- Ohio Revised Code Section 955.11 "Transfer of Ownership or Possession of Dog" in reference to "vicious dog" (enacted November 1998 revised fall 2005): Available at <http://onlinedocs.andersonpublishing.com/oh/lpExt.dll?f=templates&fn=main-h.htm&cp=PORC>
- Osgood, D. W., Johnston, L., O'Malley, P., & Bachman, J. (1988). The generality of deviance in late adolescence and early adulthood. *American Sociological Review*, 53, 81-93.
- Sacks, J. J., Lockwood, R., Hornreich, J., & Sattin, R. W. (1996). Fatal dog attacks, 1989-1994. *Pediatrics*, 97, 891-895.
- Wright, J., & Hensley, C. (2003). From animal cruelty to serial murder: Applying the graduation hypothesis. *International Journal of Offender Therapy and Comparative Criminology*, 47, 71-88.

Jaclyn E. Barnes is a clinical research coordinator at the Mayerson Center for Safe and Healthy Children at Cincinnati Children's Hospital. She obtained her BS in psychology from Xavier University (1999) and received her MA in sociology from the University of Cincinnati (2005). She has contributed to projects investigating topics such as dissociative disorders and sexual abuse, pharmacotherapy for survivors of child abuse, and predictors of early engagement in home visitation.

Barbara W. Boat, PhD, is an associate professor at the University of Cincinnati College of Medicine and director of the Program on Childhood Trauma and Maltreatment. She is also executive director of The Childhood Trust of Children's Hospital Medical Center. She received a BA in psychology and Spanish at Macalester College, in St. Paul, MN, an MA in child behavior and development at the University of Iowa, and a PhD in psychology at Case Western

Reserve University. Her special clinical interests are diagnosis and treatment of dissociative disorders in traumatized children and working with families where children have witnessed domestic violence.

Frank W. Putnam is a child and adolescent psychiatrist and director of the Mayerson Center for Safe and Healthy Children at Cincinnati Children's Hospital. He directs prevention, evaluation, treatment, and research programs on child maltreatment and trauma. Previously he was chief of Developmental Traumatology at the National Institutes of Health.

Harold F. Dates is the general manager of Cincinnati Society for the Prevention of Cruelty to Animals. He has 29 years of experience in the field of animal care and control. He currently serves on the board of the Society of Animal Welfare Administrators and is the president of the Ohio Federated Societies. He is a recipient of the American Humane Association's Donald H. Anthony Award.

Andrew R. Mahlman attended the University of Cincinnati for 5 years and has held the position of operations manager with the Cincinnati Society for the Prevention of Cruelty to Animals since 1975. He also served on the Dearborn County Animal Control Board overseeing the operation of the Dearborn County Animal Shelter for 14 years.