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# Using the National Incident-Based Reporting System (NIBRS) to Study Animal Cruelty: Preliminary Results (2016–2019)

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**Abstract:** On 1 January 2016, the Federal Bureau of Investigation (FBI) began collecting data on crimes involving animal cruelty from law enforcement agencies that participate in the National Incident-Based Reporting System (NIBRS) in the United States (U.S.). Prior to 2016, such crimes either went unreported or were lumped into an “all other offenses” category, making it difficult to understand who was committing these crimes and whether there were any connections between crimes perpetrated against animals and crimes in which there was a human victim. Animal cruelty has been linked to certain types of human violence and, therefore, it is important for authorities to know more about the people committing these crimes. Preliminary results from an analysis of the first four years (2016–2019) of data are presented. The age and gender of animal cruelty offenders, the time of day when most crimes occur, and the most common locations where offenses take place are presented. The type of animal cruelty involved and details of the other crimes that co-occur with animal cruelty are discussed. The limitations of the data are shared and recommendations are made about other types of data that could be collected in the future to add value to the data.

**Keywords:** animal cruelty; criminal justice; domestic violence; crime data; child maltreatment



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## 1. Introduction

The relationship between animal cruelty and human violence has been discussed extensively in scholarly literature. The topic is multi-disciplinary and has filled volumes in fields as diverse as sociology, psychology, psychiatry, philosophy, social work, criminology, public policy, and law. Interest in the subject has grown in recent years, as more and more studies have revealed the links between those who engage in non-human animal (heretofore “animal”) maltreatment and violence against people. By identifying crimes that co-occur with animal cruelty, it is thought that law enforcement officials could have another tool to try and prevent both animal cruelty and human violence (Hoffer et al. 2018; Johnson 2018; Ascione et al. 2018; Heide and Felthous 2018; Arkow and Lockwood 2016).

The Federal Bureau of Investigations (FBI) is tasked with collecting, publishing, and archiving crime statistics for the United States (U.S.). On 1 January 2016, the FBI began collecting incident-specific information about crimes of animal cruelty from law enforcement agencies that participate in what is known as the National Incident Based Reporting System (NIBRS). This move was spearheaded by a number of organizations, including the National Sheriff's Association (NSA) and the Animal Welfare Institute (AWI), on the basis of research demonstrating that many crimes involving human victims often co-occur with other crime. That research highlighted the importance of paying attention to crimes involving animals as a way to better understand crimes involving humans (Hoffer et al. 2018; Levitt et al. 2016; Arkow and Lockwood 2016; Federal Bureau of Investigation 2016).

This paper discusses results from an examination of the 2019 data on animal cruelty crimes released by the NIBRS from the Uniform Crime Reporting (UCR) program of the FBI on 9 December 2020 (Federal Bureau of Investigation 2020). Data were obtained from a publicly available FBI website (Available online: <https://ucr.fbi.gov/nibrs/2019>

(accessed on 15 January 2020)) and through direct contact with staff in the Crime Statistics Management Unit (CSMU) of the Criminal Justice Information Service (CJIS) Division at the FBI. This study is one of the first to look at the animal cruelty data collected by the FBI, and hopefully it will lead to additional questions and hypotheses as new data become available. The paper also discusses some of the limitations of the NIBRS data.

## 2. Background

Companion animals are an important part of American society with over 63 million U.S. families having at least one dog in their household, and spending on animal care reaching over USD 75 billion in 2019 ([American Pet Products Association 2020](#)). A majority (67%) of American families live with at least one companion animal (dog, cat, horse, bird, fish, etc.), and responsible animal guardianship and caring for them as a family member is now becoming the norm, at least in western societies. Although there are regional and cultural differences across the country, many people now consider their dog a friend, or like another family member ([Rowan and Kartal 2018](#); [Fox and Gee 2017](#); [Bir et al. 2018](#)). The role of domestic dogs in American society has been evolving over time, as people move out of rural areas and into more urban and suburban communities. Whereas dogs were once used primarily for protection or as working dogs on farms or for hunting, many dogs are now seen as companions and family members, living indoors and often sharing the beds of their human family members. A recent survey of women dog and cat guardians around the country found that over half (55%) shared their beds with at least one dog, and about a third (31%) share their bed with a cat ([Hoffman et al. 2018](#)). Despite this, animals are still considered property under U.S. law and, therefore, they do not have rights as a “legal person” would ([Favre 2017](#)).

Violence perpetrated against family members is common in society and is a large public health concern. Empirical studies have shown that child abuse and neglect often co-occur in households where animals are abused or neglected ([Monsalve et al. 2017](#); [Arkow and Lockwood 2016](#); [Catalano 2015](#); [DeGue and DiLillo 2009](#); [Flynn 2000](#)). Domestic violence involving a family’s companion animals highlights the “darker side” of the human–animal bond. In a study by [Campbell et al. \(2021\)](#) about intimate partner violence (IPV), it was concluded that there is an increased risk to victims (both human and animal) of suffering “severe or fatal injuries”, when the IPV suspect has a history of abusing companion animals in the household.

The Centers for Disease Control and Prevention (CDC) ([Centers for Disease Control and Prevention 2020a](#)) reports a staggering USD 3.6 trillion in lifetime economic costs for medical care, mental health services, and lost productivity (e.g., time away from work) as a result of domestic and intimate partner violence related injuries. They also cite information from U.S. crime data indicating that 16% of homicide victims are killed by a domestic/intimate partner and that many of these individuals also suffer both physical and mental trauma. The costs to society are large, and include the criminal justice expenses, often affecting victims and their families for years. In addition to the high personal, societal, and economic costs of domestic violence, it is important to note that those who perpetrate IPV and who are known to harm animals are also more likely to have committed other violent crimes in the community, including property crimes, drug offenses, and other crimes against persons ([Hoffer et al. 2018](#); [Campbell et al. 2021](#); [Campbell et al. 2017](#); [Arluke et al. 1999](#)).

### 2.1. Why Study Animal Cruelty?

The definition of animal abuse (AA) that is now widely used in the academic literature to describe the symptom of conduct disorder (CD), that is analogous to the maltreatment of children, but perpetrated against animals, is “ . . . non accidental, socially unacceptable behavior that causes pain, suffering or distress to and/or the death of an animal” ([Ascione et al. 2018](#); [Ascione and Shapiro 2009](#)). It is important to know about incidents of animal cruelty happening in our communities, not only because animal cruelty is a crime in all

50 states in the U.S. (Schaffner 2011), but also because, as noted above, there are many studies suggesting that those who engage in animal cruelty are also more likely to commit other crimes (Hoffer et al. 2018; Ascione et al. 2018; Johnson 2018). Previous work has shown that people who engage in animal cruelty have often been victims, themselves, of child abuse or have experienced other forms of family violence, such as witnessing another person committing an act of animal cruelty. Exposure to animal abuse at an early age may be a risk factor for future antisocial behavior and juvenile delinquency. Other factors which have been looked at include demographic characteristics such as race, socio-economic background, and level of education. The connection between bullying and animal abuse has also been studied (Fitzgerald et al. 2016; Gullone 2016; Taylor and Signal 2016; Flynn 2011; Hensley et al. 2009; Herzog 2007; Tallichet and Hensley 2004; Arluke et al. 1999; Ascione 1999).

Several studies have illustrated the importance of examining the age and gender of animal cruelty offenders and how exposure to animal cruelty and other forms of family violence and other forms of inter-personal violence can play a role in someone's likelihood of becoming an animal abuser. This is especially true for males. Past engagement in criminal activity has also been found to play a role in whether or not someone is likely to engage in animal cruelty. The age of first exposure to animal cruelty is also believed to be important in the proclivity someone has to becoming an animal abuser (Reyes 2016; Flynn 2012; Gullone and Robertson 2008; Herzog 2007; Baldry 2005; Henry 2004). Many of these previous studies have been hampered by limitations, including small sample size, unclear definitions of how animal cruelty is defined or what kind of abuse was involved (e.g., active or passive), and under-reporting in surveys that rely on self-reports (Herzog 2007; Patronek 1997). Nevertheless, a wide variety of factors have been found to be associated with those who commit acts of animal cruelty.

In addition to protecting the lives of the animals themselves, there are other reasons for developing a better understanding of the nature of crimes against animals. Researchers have studied the criminal behavior and histories of convicted offenders, and concluded that crimes that involved planning and pre-meditation, such as mass murders, and some types of animal cruelty can provide warning signs about certain offenders with a history of what is known as predatory violence. As defined by Meloy (2006), predatory violence occurs in the absence of emotion and threat, and is violence that is cognitively planned and is thought to stem from a desire for control over the victim, including such things as a desire for financial gain, power, or dominance over one's victim. The other key factor used to identify those who are engaged in predatory violence is minimal or absent autonomic arousal (Hoffer et al. 2018; Meloy 2006).

From a law enforcement perspective, by anticipating individuals or families who are most at risk of being victims of interpersonal violence, it may be possible to prevent a crime from happening. Prosecutors and police agencies may also be able to strengthen their cases against offenders by filing charges of animal cruelty, in conjunction with other offenses. Finally, children who are known to repeatedly engage in animal cruelty should be identified at an early age so that they can get help, as they are more likely to be getting into other types of trouble, both in school and at home (Hoffer et al. 2018; Brewster and Grugan 2016; Randour and Gupta 2016).

## 2.2. History of Crime Data Collection in the United States

National crime statistics data collection was initiated in January of 1930 by what was called the Committee on Uniform Crime Reports of the International Association of Chiefs of Police (IACP). Shortly after the program began, it was taken over by the U.S. Department of Justice, Bureau of Investigation (which became the Federal Bureau of Investigation in 1935). The FBI serves as a central clearinghouse for data on crime that is voluntarily submitted monthly by over 18,000 law-enforcement agencies (including city, university and college, county, state, tribal, and federal) across the country. In addition to standard definitions of offenses, communities are grouped into jurisdictions with similar

characteristics (e.g., urban vs. rural, population size, etc.) so that data can eventually be compared among like entities ([National Academy of Sciences, Engineering, and Medicine 2016](#); [Snyder 2013a, 2013b](#); [Bureau of Justice Statistics n.d.](#)).

The Summary Reporting System (SRS) was the initial method of collecting crime statistics for most of the 20th century and into the early 21st century. Under the SRS, only certain violent crimes were reported, when there was an incident that involved more than one criminal offense. These included murder and non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. They were grouped into categories of crimes against persons and crimes against property. There were an additional 21 categories of crime that were also reported in the system, but only if an arrest was made. Crimes were listed in order of severity, and when there were multiple offenses for an incident only the most severe crime was listed. This was known as the “hierarchy rule” and said that when there was a criminal incident, only the most serious crime would be counted. The existence of the hierarchy rule explains why the data were considered only “summary data”, since there was little detail in such reports and only a “rough summary” or “aggregate” of what had happened was presented. The SRS never really provided enough information to look for patterns or do any statistical analyses of the crimes that occurred ([National Academy of Sciences, Engineering, and Medicine 2016](#); [Snyder 2013a, 2013b](#); [Bureau of Justice Statistics n.d.](#)).

In the early 1980s, there were calls for expanding the UCR program to collect more detailed information which would enable law enforcement agencies, researchers, policy makers, the public, and the media to use the information to develop a better understanding of why crimes were being committed, who was committing them, and perhaps lead to approaches to help in preventing them. A joint task force comprised of employees from the Bureau of Justice Statistics (BJS) and the FBI produced a 342-page report, entitled *Blueprint for the Future of the Uniform Crime Reporting Program*, that recommended the development of a new crime reporting system, to replace the existing “aggregate” system, that would provide more detail about specific incidents ([National Academy of Sciences, Engineering, and Medicine 2016](#); [Snyder 2013a](#); [Poggio et al. 1985](#)).

### 2.3. National Incident-Based Reporting System (NIBRS)

The NIBRS was developed in the late 1980s to take the place of the SRS, by allowing law enforcement agencies to report as much detail as they had, about the crimes that came to their attention. Under the NIBRS, if multiple offenses took place within a single incident, all crimes would be recorded (not just the most egregious crimes) and it would not matter if an arrest was made or not. The NIBRS enables law enforcement officers to collect and report details about the type of crime, the date, location, the time of day, and the day of the week that crimes take place or are reported. It also captures information about the gender, age, race, and ethnicity of the offender or offenders, and the relationship, if any, between the victim and the offender ([Federal Bureau of Investigation 2019b](#); [National Crime Statistics Exchange Initiative n.d.](#); [National Archive of Criminal Justice Data n.d.](#)).

The move to create the NIBRS was also based on a 2015 recommendation from law enforcement organizations across the country (International Association of Chiefs of Police (IACP), Major Cities Chiefs Association (MCCA), National Sheriffs Association (NSA), Major County Sheriffs Association (MCSA)). These organizations, and their members, recognized that the SRS system was not only “in need of modernization” but they also noted that the program did not share data in a way that allowed for real time access to the information or “transparency” about the types of crimes that were taking place on a daily basis across the nation. The recommendation also highlighted aspects of the NIBRS system that would make it more useful to law enforcement agencies, including better allocation of resources. They cited the usefulness of the data for developing a better understanding of crime and the behavior of criminals, as well as their use for developing new approaches to crime prevention across similar and neighboring jurisdictions in their states ([Federal Bureau of Investigation 2015](#)).

Behind the scenes, at the suggestion of the Office of Management and Budget (OMB), the BJS and the FBI enlisted the assistance of the National Academy of Sciences (NAS) to conduct two studies on what would be required to modernize the nation's crime statistics enterprise ([National Academy of Sciences, Engineering, and Medicine 2016, 2018](#)). The 2016 report (*Modernizing Crime Statistics: Report 1: Defining and Classifying Crime*) identified gaps in knowledge and discussed the meaning of crime, how best to collect and classify crime data, and how to take advantage of existing information technology, going forward ([National Academy of Sciences, Engineering, and Medicine 2016](#)). In the 2018 report (*Modernizing Crime Statistics: Report 2: New Systems for Measuring Crime*), the committee recognized what they called "knowledge gaps" in the types of crimes that our nation's crime statistics enterprise captures, and redefined crime to include things like cybercrime and others that were not even contemplated at the time crime data collection first began. In addition to redefining the type of crime data that should be collected, the committee also recommended that crime data collection be broad and inclusive and utilize as many sources as possible (including survey data such as from the National Crime Victimization Survey (NCVS)) and contain as much detail as possible.

The report also recommended that the Federal government take a stronger role in coordinating data collection and encouraged OMB to help determine the best way to coordinate/govern crime data collection and statistical analysis across the Federal government. The report encouraged those in law enforcement to make the data collection part of their standard operating procedures and to see it as a benefit to their operations, as opposed to a burdensome endeavor. In addition, the report said that improved data quality should be an important goal, going forward ([National Academy of Sciences, Engineering, and Medicine 2018](#)). The process of phasing out the SRS and replacing it with an NIBRS-only system of data collection began in July 2018, and was called the "NIBRS Transition". The decision to phase out SRS had the approval of not only the Acting Director of the CJIS, but also had the support of law enforcement agencies and the CJIS Advisory Policy Board ([Federal Bureau of Investigation 2019a, 2019b; Federal Bureau of Investigation 2016](#)). At that time, the FBI began encouraging those states that were not yet using the NIBRS to begin the process of changing their records management systems (RMS) so that they could start submitting crime data in the NIBRS. Both the FBI and BJS provided resources to state UCR programs to help them with training, technical documentation, data integration, and assistance with NIBRS certification ([Federal Bureau of Investigation 2018a, 2018b](#)). On January 1, 2021, the UCR program retired the SRS and all law enforcement agencies are now encouraged to use the NIBRS. The FBI would now only accept crime data collected using the NIBRS ([Federal Bureau of Investigations n.d.](#)).

NIBRS data is available to the public in a variety of forms and can be obtained from a number of different sources. In addition to the FBI NIBRS website, the Justice Research and Statistics Association (JRSA) has produced a website known as the Incident-Based Resource Center ([Justice Research and Statistics Association n.d.a, n.d.b](#)) which helps facilitate the use of NIBRS data. The FBI also has a web tool called the Crime Data Explorer (CDE) website which, among other things, helps to provide easier access to the data for those interested in public policy applications ([Federal Bureau of Investigation n.d.](#)). The primary source of NIBRS data for researchers, however, is on the National Archive of Criminal Justice Data (NACJD) website, which is part of the part of the Inter-university Consortium for Political and Social Research (ICPSR) housed at the University of Michigan Institute of Social Research (ISR). The FBI provides the raw NIBRS data to the NACJD, who then do quality control checks and process the files to make them available in a format that people interested in the data will be able to use for their research.

The process of creating these "extract files" can take a significant amount of time and the data is often several years behind in being made available. At the time this paper was being written July (2021), the 2017 and 2018 NIBRS data had been curated and the NACJD were awaiting approval from the BJS to release the data on the ICPSR website. According to the staff at the NACJD, they anticipate that the 2017 and 2018 files should

be approved for release by the end of 2021 (Alexandra Eastman, ICPSR User Support, personal communication, 25 June 2021).

#### 2.4. Incorporation of Animal Cruelty into the NIBRS

In 2003, animal advocates, with support from legislators, law enforcement organizations, and domestic violence groups, initiated an effort to convince the FBI to start collecting data on animal cruelty crimes. The rationale was based on empirical studies of the connection between, and co-occurrence of, animal cruelty and different forms of family and inter-personal violence (Levitt 2016; Ascione 1999, 2001; Arluke and Lockwood 1997). The collection of such information would enable real data to be used for analysis of crime trends and the testing of hypotheses about the link between animal cruelty and the co-occurrence of family violence. It would also provide a tool for law enforcement and policy makers that could impact allocation of resources to help with crime prevention, and allow researchers to better understand deviant behavior (Federal Bureau of Investigation 2015; Randour, Mary Lou n.d.). After 12 years of effort by many non-profits and law enforcement organizations, the FBI approved a change in how animal cruelty crimes would be recorded in the UCR/NIBRS data collection system in September of 2014. It was decided that animal cruelty would be classified as a “crime against society” as a “Group A” offense, with its own classification and coding. A crime against society “represents society’s prohibition against engaging in certain types of activity” and includes things like drug/narcotics offenses, gambling, prostitution, and weapons law violations (Federal Bureau of Investigation 2019b).

The data discussed in this article were obtained from both the FBI NIBRS website for each year in question (2016–2019) and also from anonymized Excel data files (for just 2017, 2018 and 2019) obtained as a courtesy to the AWI directly from the FBI (CJIS, personal communications, 2019–2021) while the author was an intern, and then a consultant at AWI. Both the FBI NIBRS website and the data files the author had access to, provide similar information, but the data obtained from the CJIS has individual incident-specific data not available on the FBI website. By obtaining the data directly from the CJIS, they were able to obtain access to the 2017–2019 datasets prior to them becoming available at ICPSR. It is beyond the scope of this paper to provide the reader a comprehensive understanding of the subtleties of NIBRS crime data. Resources are available on the FBI website for anyone wanting to learn more about how the NIBRS works and how the data is collected. Since the focus of this paper is on the animal cruelty data that has been collected since 2016 by states and submitted to the FBI through each state’s UCR program, this discussion will focus mainly on the information related to the animal cruelty data and how to interpret it.

### 3. Results: NIBRS Animal Cruelty Data (2019)

Animal cruelty is defined by the FBI as “Intentionally, knowingly, or recklessly taking an action that mistreats or kills any animal without just cause, such as torturing, mutilation, maiming, poisoning, or abandonment.” This includes failure to provide medical care if the animal is sick or injured, and failure to provide shelter, food, and water. In addition, transporting an animal or confining them in such a way that injury or death is the result, is also included in this definition. Four types of animal cruelty are recognized, including: simple/gross neglect (coded: A), intentional abuse or torture (coded: I), organized abused (i.e., animal-fighting) (coded: F), and animal sexual abuse (bestiality) (coded: S). Reporting agencies can report up to three of these in any combination (Federal Bureau of Investigation 2019b).

In 2020, the author published four articles in the trade magazines of organizations whose members were likely to be most interested in information about animal cruelty. The organizations included the International City/County Management Association (ICMA), the National Animal Care and Control Association (NACA), the National Sheriff’s Association (NSA), and the International Association of Chiefs of Police (IACP) (Palais 2020a, 2020b, 2020c, 2020d). The magazine articles summarized the first three years (2016–2018)

of NIBRS animal cruelty data. In the next section, the 2019 animal cruelty data from the NIBRS, which was released by the FBI in late 2020, is discussed. The data was obtained in the same way as the previous data, as a courtesy to the AWI (CJIS, personal communication, 2021). Table 1 shows the number of animal cruelty incidents reported in each year from 2016 to 2019 for each state that was collecting data at the time. The data are from both the publicly available NIBRS FBI websites for each year, with footnotes that provide comparative data from the CJIS data file for each year that we have that data (2017–2019). Although the focus of this paper is on the 2019 data (Federal Bureau of Investigation 2020), the following discussion includes information and comparisons with data from prior years Palais (2019, 2020a, 2020b, 2020c, 2020d).

**Table 1.** Number of Animal Cruelty Incidents by State \* for 2016–2019 from the FBI NIBRS website for each year.

NIBRS Data/Year	2016	2017	2018	2019
Number of Animal Cruelty Incidents	1126 <sup>1</sup>	3228 <sup>1</sup>	5201 <sup>1</sup>	9956 <sup>1</sup>
Number of agencies reporting NIBRS data	6849	6998	7283	8497
Number of agencies that reported animal cruelty data	n.a.	722 (10%) <sup>2</sup>	1056 (15%) <sup>2</sup>	1721 (20%) <sup>2</sup>
State/Year	2016	2017	2018	2019
Alabama	0	0	2	2
Arizona	0	0	2	43
Arkansas	0	0	0	6
Colorado	8	526	782	755
Connecticut	0	18	74	131
Delaware	494	923	1097	1294
Georgia	0	0	0	260
Hawaii	0	0	50	51
Idaho	0	2	7	34
Illinois	0	0	0	0
Indiana	0	0	0	311
Iowa	0	0	0	0
Kansas	0	0	0	0
Kentucky	0	45	186	266
Louisiana	0	0	0	0
Maine	0	3	13	8
Maryland	0	0	0	8
State/Year	2016	2017	2018	2019
Massachusetts	2	13	44	89
Michigan	130	277	398	520
Minnesota	1	4	61	272
Mississippi	0	0	47	193
Missouri	15	43	43	68
Montana	0	83	92	104
Nebraska	0	0	1	6
Nevada	0	0	0	1
New Hampshire	0	81	173	191
New Mexico	0	0	0	32
North Carolina	0	0	0	420
North Dakota	7	46	81	100
Ohio	0	23	102	164
Oklahoma	0	0	0	74
Oregon	105	134	421	446
Pennsylvania	0	0	0	0
Rhode Island	0	0	5	23

Table 1. Cont.

NIBRS Data/Year	2016	2017	2018	2019
South Carolina	0	200	295	321
South Dakota	10	12	24	33
Tennessee	219	476	463	473
Texas	0	69	393	1394
Utah	0	0	0	6
Vermont	0	21	41	39
Virginia	0	0	0	1372
Washington	85	114	128	188
West Virginia	13	18	11	11
Wisconsin	37	97	154	237
Wyoming	0	0	0	10

\* District of Columbia (DC)—2016 (0); 2017 (0); 2018 (0); 2019 (0); <sup>1</sup> Number from the CJIS Excel file for 2019 is 10,448; for 2018 is 5324; for 2017 is 3412; for 2016—n.a. = not available; <sup>2</sup> Percent of NIBRS-reporting agencies that submitted animal cruelty data.

### 3.1. Animal Cruelty Reporting: Year to Year Variations

According to the FBI website, in 2019 there were 18,667 law enforcement agencies nationwide, of which 16,554 (88%) voluntarily submitted crime data to the UCR program. Of those, only 8497 (51%) reported data in the NIBRS, with the rest submitting their data under the SRS ([Federal Bureau of Investigation 2019d](#)). The information is reported on the FBI website and shown in Table 1 below. States that are missing from this list (or have zeros in the table for a particular year) were either not NIBRS-certified, were only submitting data in SRS, or were not collecting/reporting animal cruelty data in the NIBRS in the year in question.

Using the animal cruelty data files obtained from the CJIS for the years 2017–2019, it is possible to count the number of individual law enforcement agencies that reported animal cruelty in the NIBRS for each year. In 2017, 722 (10%) of the 6998 agencies reporting crime data in the NIBRS had reports of animal cruelty. In 2018, that number grew to 1056, representing 15% of the 7283 agencies reporting data in the NIBRS for that year. In 2019, 1721 law enforcement agencies reported incidents of animal cruelty in the NIBRS, representing about 20% of the 8497 agencies reporting data that year, or only about 9% of all law enforcement agencies in the country. The main takeaway from this analysis is that the results presented here are just a sampling of what is to come in the future if more jurisdictions start contributing to the NIBRS.

Nationwide, in 2019, the number of law enforcement agencies reporting animal cruelty data (1721) was a small fraction (9%) of the total number of agencies (18,667) that could be reporting data on animal cruelty. While the numbers have increased from year-to-year, the current numbers are clearly only the tip of the iceberg, in terms of the number of incidents that are likely to be occurring across the nation. Whereas only 12 states reported data in 2016, that number grew to 23 states in 2017. In 2018, 29 states reported animal cruelty data in the NIBRS, and that number grew to 40 states in 2019. The total population covered by the data in 2019 was 146.5 million people, or about 45% of the U.S. population reported by the Census Bureau in 2019 (328.2 million) ([U.S. Census Bureau 2019](#)). It should be clear from this analysis that the increased number of animal cruelty incidents in 2019, over prior years, does not mean that more animal cruelty actually occurred in 2019, but instead it is an indication that more states (and more law enforcement agencies within each state) were reporting data.

An examination of the year-to-year variations for some of the states that have been participating in the animal cruelty data collection since 2016 shows roughly the same number of incidents for the last two years of data collection. With only four years of data for these states, it is difficult to draw too many conclusions. However, looking at Table 1 for the states of CO, TN, and WV, it does appear that the number of incidents from 2018 to 2019 may have leveled off. It probably will not be possible to really understand the

year-to-year variations of animal cruelty data until several more years of data are collected. Since only law enforcement agencies can report data in the NIBRS, it must be remembered that if data is collected by an animal control agency, humane society, or other municipal or government office, that is not in some way associated with law enforcement, (through an agreement such as a memorandum of understanding (MOU) or a partnership), the data may not end up in the NIBRS data submission to the FBI or may not be as comprehensive as it should be. This problem is illustrated below using an example from the 2018 NIBRS animal cruelty data from Delaware.

### 3.2. Animal Cruelty Reporting: A State-by-State Comparison of Co-Occurring Crime Data

As noted at the beginning of this paper, animal cruelty has been found to co-occur with other types of crime. In order to examine this more closely, the NIBRS data were used to look at the other types of criminal activity associated with animal cruelty incidents and how frequently animal cruelty co-occurs with those crimes. This information can be obtained from the incident-specific NIBRS data by noting what is called the offense code. An offense code of 1 means that no other crimes were associated with the animal cruelty incident. An offense code of 2 or more means that at least one other crime occurred in association with the animal cruelty. An offense code of 3 indicates that two other crimes co-occurred with the primary offense of animal cruelty, and so on. This information is only available from the ICPSR website or, as in our case, from the anonymized Excel data file that the AWI obtained from the FBI.

An analysis of the 2019 data shows that the majority (~94%) of animal cruelty incidents had no other crimes associated with them (Figure 1). In 2018, that number was about 92% (Palais 2020a). In other words, the 2018 and 2019 NIBRS data show that, on average, only about 6–8% of the incidents of animal cruelty had other crimes associated with them. This may be an underestimate, since there are likely to be a large number of organizations (e.g., humane societies and animal shelters) collecting animal cruelty data that may not be directly connected to a law enforcement agency, and may not have any way to share data about animal crimes with law enforcement agencies in their jurisdiction.

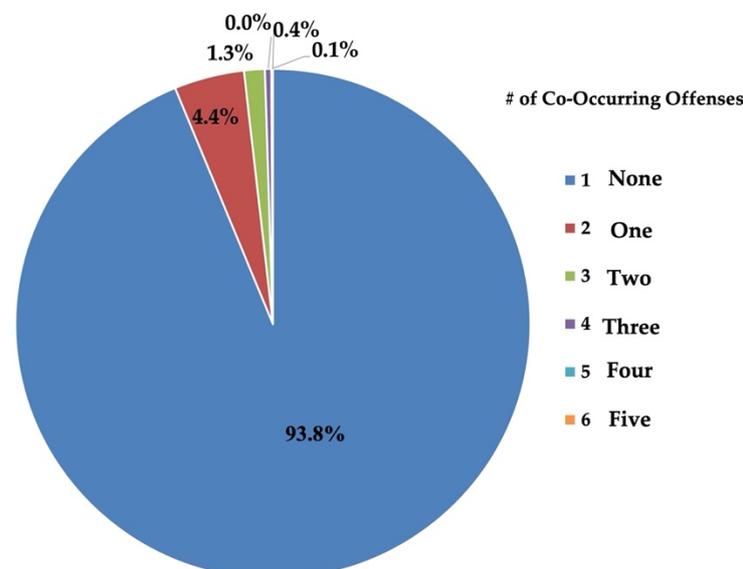
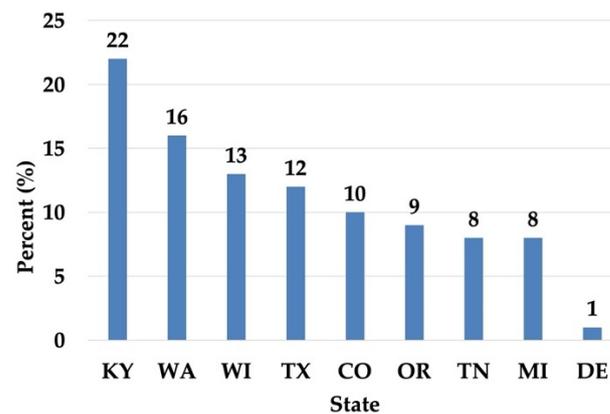


Figure 1. Animal Cruelty Co-Occurring Offenses.

Figure 2 is an analysis of the nine states with the highest numbers of animal cruelty incidents in 2018. The states include DE, CO, TN, OR, MI, TX, KY, WI, and WA (see Table 1). Given that crime data, involving animal cruelty, has never been available before, it was unknown what to expect in terms of the percentage of incidents with co-occurring crimes. Nationwide, in 2018, only 8% of the incidents, on average, had co-occurring offenses

associated with them. An important observation from this analysis was that the state of Delaware (DE), with the highest number of animal cruelty incidents reported, had a significantly smaller percentage (1%) of co-occurring crimes associated with them than other states, such as Colorado (10%), Wisconsin, (13%), and Kentucky (22%).



**Figure 2.** Percent (%) of 2018 Animal Cruelty Incidents and Co-Occurring Offenses by State.

Even though Delaware did the best job capturing data and reporting incidents of animal cruelty, in terms of the total number of crimes reported in 2018, they did less well in providing the ancillary (and important) information about co-occurring offenses than did other states. It is unknown what the actual percentage should be and whether or not there are similar differences state-to-state for other types of crimes. Given that almost a quarter (~21%) of the animal cruelty incidents in 2018 were from Delaware, the overall nationwide average of only 8% of the crimes having co-occurring offenses is likely biased by the unusually low percentage (1%) from Delaware. This also assumes that there are no state-to-state differences in offender behavior, which would cause animal cruelty offenders to be more or less likely to commit other crimes in association with animal cruelty, which seems very unlikely.

Upon examining this further, it was discovered that, as of 2018, most of Delaware's NIBRS animal cruelty data appears to be disconnected from the other crime data being recorded by law enforcement agencies. In 2013, the state of Delaware created a special office within the Delaware Department of Health and Social Services (DHSS), called the Office of Animal Welfare (OAW). While Delaware should be commended for taking animal welfare so seriously and setting up an entire office to oversee issues of animal welfare, because the organization is outside of law enforcement, most of the data they collected (at least as of 2018) was not tied to the crime data being collected by law enforcement agencies about other types of crime. Therefore, it is impossible to know if other crimes actually co-occurred with the animal cruelty incidents or not. Presumably by now Delaware has updated their systems of data collection and their records management systems (RMS) so that any animal cruelty incidents being captured in the NIBRS include information from law enforcement agencies about other crimes that took place in conjunction with the incidents recorded by the Delaware OAW. An analysis of the 2019 animal cruelty data shows a slight improvement over the data from 2018, with 2% (vs. only 1% in 2018) of the incidents having co-occurring offenses associated with them.

### 3.3. Characteristics of the Animal Cruelty Incidents and Offenders

Unless otherwise indicated, the data presented below are from the publicly available FBI websites, produced each year, to report a high-level summary of the NIBRS data. The 2019 data tables are available in both PDF and Excel format and contain information, by state, about the many different types of crime reported by the FBI ([Federal Bureau of Investigation 2020](#)). These data tables are organized into three crime groupings: "crimes against persons" (e.g., assaults homicides, kidnapping, and sex offenses), "crimes against

property” (e.g., arson, burglary, robbery, and vandalism), and “crimes against society” (e.g., animal cruelty, drug offenses, gambling, and pornography). Other details that can be obtained from the website include information about the location where various crimes occurred, the age, gender and race of offenders and victims, information about the time of day when the crimes occurred, and information about the relationship between the offender and the victim, in the case of crimes against persons.

### 3.3.1. Spatiotemporal Variation of Animal Cruelty Incidents

The magazine articles published by Palais in 2020 examined the spatiotemporal variability of animal cruelty incidents in 2018 and the possible explanations for what was observed. The 2019 data show very similar results for the locations and timing of animal cruelty incidents, and there are many other similarities in the data for the first four years of data collected by the FBI in the NIBRS (2016–2019) (Palais 2019, 2020a, 2020b, 2020c, 2020d). Figure 3 shows the most common locations where incidents of animal cruelty took place in 2019. The majority (~69%) of incidents took place in or around a home/residential setting. Other locations where animal cruelty was found to occur included roads (~8%) and parking lots (~7%), locations marked as Unknown (~4%), and in fields or woods (~3%). The percentages for the 2018 data were reported by Palais (2020b) and are quite similar to the 2019 data, with 68% of animal cruelty incidents taking place in a home or residential setting, 10% taking place along roads, 8% occurring in parking lots, and 2% reported to have taken place in a field or woods.

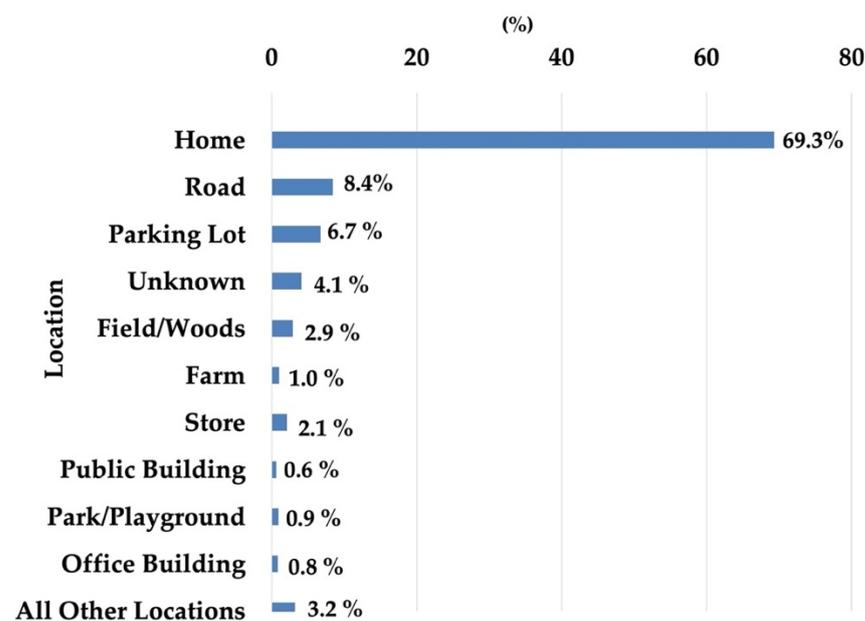


Figure 3. Location of 2019 Animal Cruelty Incidents (%).

As noted by Palais (2020a), the time of day when an animal cruelty incident occurs can perhaps have value for both law enforcement and animal control officers for identifying the time at which certain types of crimes are most likely to occur. This could help not only with things like staffing for those patrolling communities, but also with providing information to the public in order to make sure that those involved in neighborhood watch programs are vigilant throughout the day. Figure 4 shows the time of day when animal cruelty offenses occurred in 2019. These data are from the same FBI data tables, available online, as the location data discussed above. All types of cruelty are grouped together, without separating out different types of cruelty. The noon-time peak of animal cruelty incidents has been observed in every year of data that has been examined from 2016 to 2019 (Palais 2019, 2020a, 2020c). Determining whether or not this temporal pattern of animal cruelty incidents is related to the actual time that an animal was harmed or is simply an

artefact in the reporting is unclear. This is discussed in more detail below, in the section on “Incident-Specific Crime Details”.

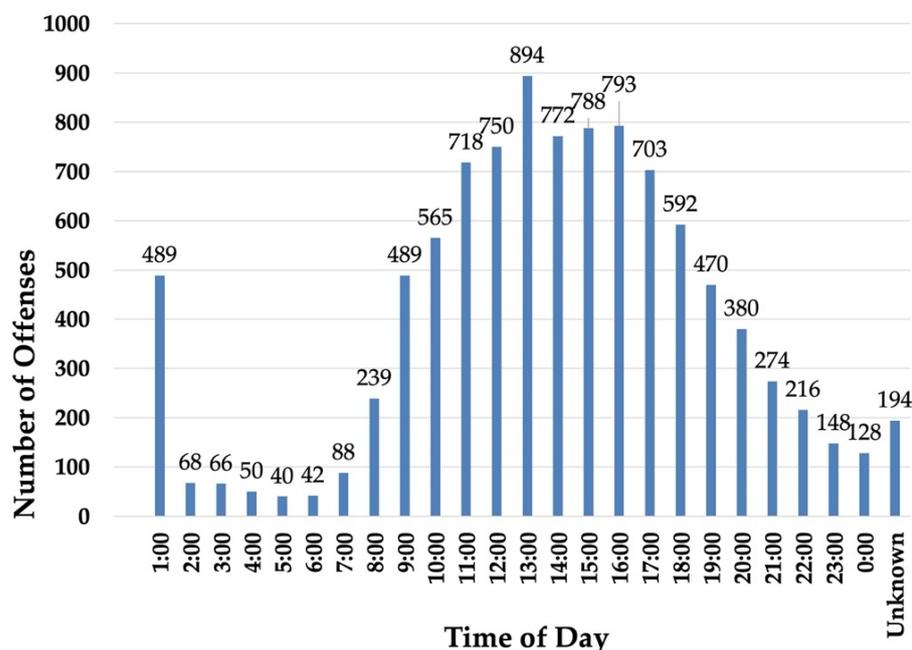
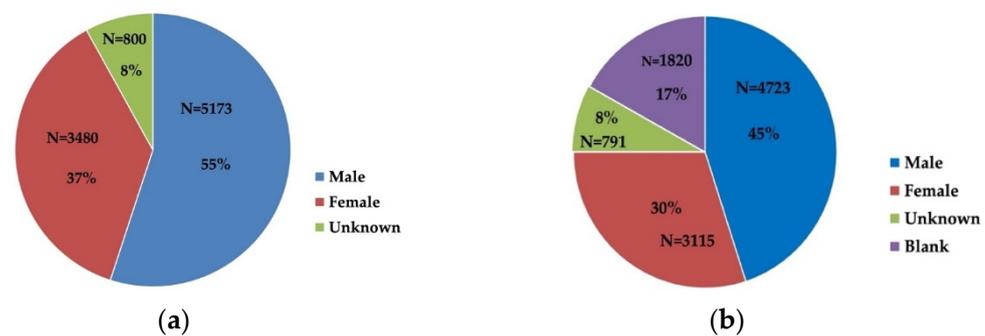


Figure 4. Animal Cruelty vs. Time of Day.

From a law enforcement perspective, this is important as it provides an opportunity for police and sheriff’s deputies to be on the lookout for situations where there might be an animal at risk. If law enforcement officers are called to a residence about a matter involving a human family member, they should watch out for any animals that might also be in danger. Likewise, if an animal control officer or humane law enforcement officer is called to a home about a situation involving an animal in distress, involving neglect or intentional cruelty, they should be aware that a human family member at the home might also be in danger. Finally, it also highlights the value of cross-training and cross-reporting among the various law enforcement agencies (and child protective services). An analysis of the 2019 animal cruelty data provided by the CJIS, which gives information about the co-occurring crimes associated with animal cruelty incidents, shows that non-violent and violent crimes such as assault (both simple and aggravated), vandalism, drug/narcotics violations, burglary, and weapons law violations are the types of crime most commonly co-occurring with animal cruelty. This is discussed in more detail below in Section 3.5. Only a small number of the incidents in the database had crimes commonly associated with family violence. These included kidnapping/abduction (12) and different types of sex offenses (16) (rape, sodomy, fondling). Even though it is not known if these incidents involved an adult or a child victim, it is still clear that when an animal is harmed, a person may also be harmed, and therefore, getting social services involved is probably very important.

### 3.3.2. Gender of Animal Cruelty Offenders

The data presented in Figure 5a,b shows the gender of animal cruelty offenders presented in two different ways. The data in Figure 5a is from the publicly available FBI data table available on the 2019 NIBRS website (Federal Bureau of Investigation 2020) and the data presented in Figure 5b is from the Excel spreadsheet provided to the AWI from the CJIS. The purpose of this comparison is to illustrate just how complex NIBRS data can be and why it is important to understand how it is treated by the FBI prior to public release.



**Figure 5.** (a) Gender of 2019 Animal Cruelty Offenders (%) from the FBI Website; (b) Gender of 2019 Animal Cruelty Offenders (%) from CJIS data.

The gender of animal cruelty offenders presented in Figure 5a, shows males making up 55%, females accounting for 37% of offenders, and 8% of offenders having an unknown gender. Figure 5b is a similar pie chart showing the gender makeup of animal cruelty offenders with 45% of offenders being male, 30% being female, and 8% listed as unknown. This figure has another category not given in Figure 5a which shows that 17% of the offenders were actually listed in the raw data as having no gender information (i.e., they were left as “blank” in the data table).

The explanation for these differences is that the data tables provided on the FBI website have been adjusted to account for the missing data (Liao et al. 2015; Targonski 2011). Whereas the raw data obtained by the CJIS shows 45% of offenders being male and 30% being female, the data made available on the public FBI website shows that 55% of offenders are male and 37% are female. These numbers compare well with 2018 data, where 57% of offenders were male, 36% were female, and 7% were unknown. They are also similar to the 2018 data provided by the CJIS, published by Palais (2020b), showing that 48% of 2018 offenders were male, 29% were female, 7% were unknown, and 16% were “blank”. This example illustrates why there may be variability in the numbers and demonstrates why it is important to understand how the NIBRS data is collected, how it is processed, and why one must be careful when looking at the numbers from a particular type of crime or category of offender (Addington 2009, 2015; Bibel 2015; Jarvis 2015). This is especially true when making comparisons among the different sources of NIBRS data available for analysis (see also Data Availability Statement).

### 3.3.3. Age of Animal Cruelty Offenders

The age of the 2019 animal cruelty offenders obtained from the FBI NIBRS website is summarized in the tables in two different ways. The number of offenders in certain age ranges (<10 years, 11–15 years, 16–20 years, 21–25 years, etc., >66 years, and offenders of unknown age) are given in one table and the same data is also available in a table which distinguishes juveniles from adults (>18 years of age). The number of animal cruelty offenders in each age range is plotted in a histogram in Figure 6a. The number of offenders in each age group is listed at the top of each bar in black and the percentage of the total offenders is given in red above each bar. Figure 6b shows not only the percentage of animal cruelty offenders who are classified as juvenile and adults, but it also shows how the age of animal cruelty offenders compare with offenders of other crimes.

Figure 6a shows a broad peak in the number (and % of the total) of offenders in the age ranges 21–25 (10.8%), 26–30 (12.0%), and 31–35 (11.0%) years of age, as well as a large number of offenders of unknown age (~13% of the total). About one-third of all offenders are between the ages of 21 and 35. It was surprising to see how few juveniles (<16 years of age) appear in the database given how much of the literature has focused on childhood animal cruelty (Bright et al. 2018 provides a good review). Caution is advised once more, and it is worth remembering that this data represents a very small portion of data and the results should be considered very preliminary. Interestingly, although one often hears

dramatic news stories about children (mostly boys) who are involved in incidents of animal cruelty, it is surprising to see how few (~1.5%) of all animal cruelty offenders in the NIBRS database are less than 15 years of age.

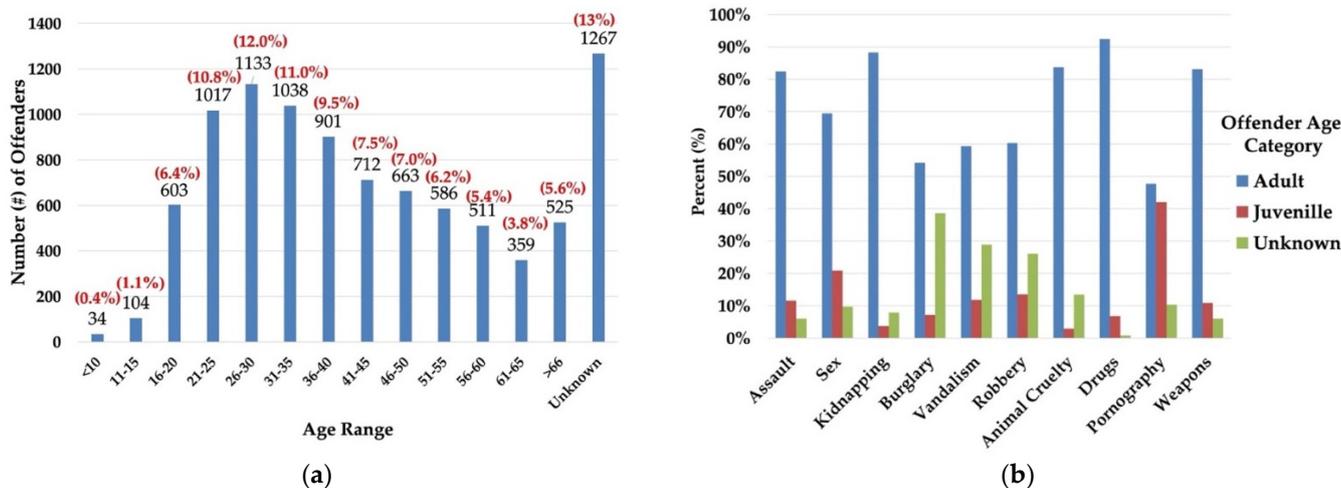


Figure 6. (a) Animal Cruelty Offenders by Age Range; (b) 2019 Adult and Juvenile Offenders vs. Offense Type.

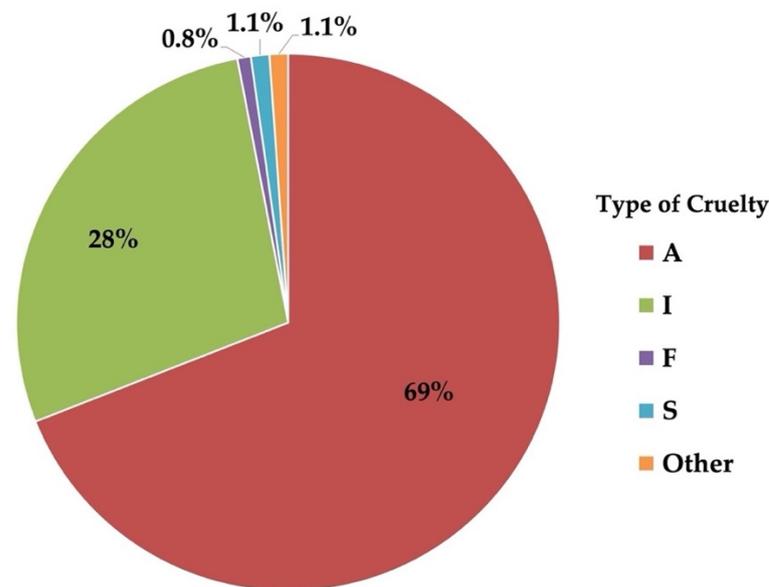
Figure 6b shows the age of all 9453 animal cruelty offenders from 2019 grouped into two different categories: those who are classified as adults (>18 years-of-age) (7916) and those who are classified as juveniles (270). The figure shows that 84% of offenders were considered to be adults and only 270 (~3%) were classified as juveniles (similar to Figure 6a above). Another 1267 (~13%) of the offenders were of “Unknown” age (Federal Bureau of Investigation 2020). The data are plotted on the same figure with other crimes, not only for comparison with other types of crime, but also to look for patters in the types of crimes committed by adults vs. juveniles. Palais (2020c, fig. 4) found that most animal cruelty crimes committed by young adult offenders, in the age range 20–30, did so in the morning, between 7 a.m. and 11 a.m. They also were active in the late afternoon around 6 p.m. (18:00 h). Different patterns were observed in the timing of the number of incidents with peaks at different times of day, for different age groups. This observation may or may not be relevant/useful for law enforcement and public safety officials.

### 3.4. Incident-Specific Crime Details

In order to examine the incident-specific information about the type of animal cruelty and details about the incidents and offenders involved, it is necessary to examine the data that is available through the ICPSR website. As mentioned earlier, the data analyzed in this study was provided as a courtesy to the Animal Welfare Institute (AWI) by the CJIS, in an anonymized Excel file. This allowed us to work on the data at a much earlier stage, given that the 2017 and 2018 data are still not available to the public on the ICPSR website. Race was not analyzed in this study due to an error in the file that we obtained from the CJIS, that resulted in some race data being missing from the Excel file. In the discussions that follow, only the gender and age information of the animal cruelty offenders are discussed.

Figure 7 illustrates the animal cruelty incidents from 2019 by offense type. As previously noted, animal cruelty is organized into four different types of crimes and any combination of up to three of those types, including simple/gross neglect (A), intentional cruelty (I), fighting/organized abuse (F), and animal sexual abuse (S). The data examined to date are dominated by incidents of simple/gross neglect. In 2019, neglect accounted for ~69% of all incidents, with intentional cruelty accounting for about 28% of all incidents. The remaining 3% of incidents were composed of organized abuse/animal fighting (~0.8%), animal sexual abuse (~1.1%), and the remainder, categorized as Other, in Figure 7, were

combinations of two or more types of cruelty. Just single-type offenses are reported here and those involving multiple types of cruelty (e.g., AI, AIS, AFI) are not included.



**Figure 7.** Animal Cruelty Offenses for 2019 by Offense Category (%).

### 3.4.1. Gender vs. Type of Animal Cruelty

The gender of animal cruelty offenders was discussed above and illustrated in Figure 5a,b. That data showed that animal cruelty offenders were more likely to be males versus female, with about 55% of offenders being male and 37% of offenders being female (see Figure 5a). The data plotted in those figures were from the publicly available NIBRS FBI website for 2019 and used just the high-level data summarized from all states and all jurisdictions that were reporting data in 2019. Information about the type of cruelty is not available from that data. Figure 8 shows the gender of animal cruelty offenders involved in the two most common forms of animal cruelty, simple/gross neglect (A) and intentional abuse (I). Men are slightly more likely to be involved in neglect versus women (42% men vs. 36% women), primarily because men make up the majority of offenders (55% male vs. 37% female). In the case of intentional cruelty, men are more than 3 times as likely to be involved in incidents of intentional cruelty versus women (53% vs. 16%). A simple Chi-squared test of the data showed that these results are statistically significant with a p-value of close to zero. Whereas there is very little gender difference in those who commit neglect (A), there is a significant difference in those who commit intentional cruelty, with men being about 3 times as likely to commit intentional cruelty.

These findings are consistent with a number of previous studies which have concluded that boys/men are more likely to be involved in active animal cruelty, whereas women and girls are more likely to be involved in cases of passive animal cruelty such as neglect and hoarding (Reyes 2016). However, Taylor and Signal (2016) note that the majority of research studies have been conducted on the male population only and Herzog (2007) has articulated many other reasons why past studies (as of 2007) make it difficult to draw firm conclusions about the gender differences in human–animal relationships, including animal abuse. This animal cruelty data from NIBRS is some of the first actual data to demonstrate that males (versus females) seem to be more likely to be involved in incidents of intentional (also known as active) animal cruelty (e.g., beating, stabbing, poisoning, shooting, etc.) as compared to passive animal cruelty (i.e., neglect, hoarding, abandonment). It also provides information about the other crimes that offenders have been involved in as part of actual incidents of animal cruelty. Previous studies have used retrospective/self-reported information from those who are already known to the criminal justice system (Hoffer et al.

2018; Levitt 2016; Levitt et al. 2016; Reyes 2016). The other co-occurring crimes associated with animal cruelty are discussed in more detail in Section 3.5 below.

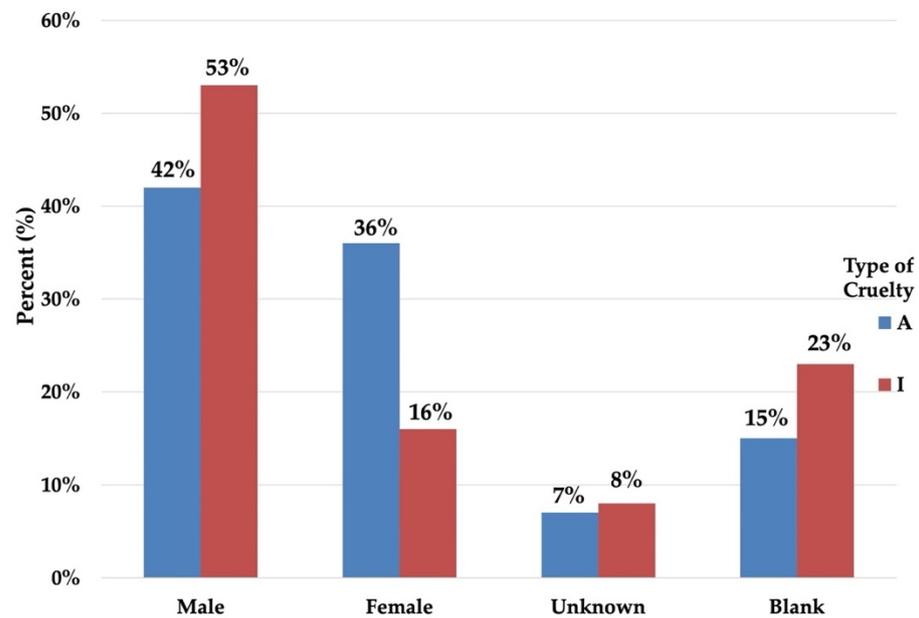


Figure 8. Gender of Animal Cruelty Offenders for Neglect (A) and Intentional Abuse (I).

### 3.4.2. Time of Day of Incidents vs. Age and Type of Animal Cruelty

Palais (2020c, fig. 4) analyzed the 2018 animal cruelty data and found a peak in the number of incidents of all types of cruelty between 12 noon (12:00 h) and 1 in the afternoon (13:00 h). The 2019 data shown in Figure 4 shows a similar result. The number of incidents is very low in the morning before 8 a.m. (8:00 h) and then increase gradually throughout the day until about 1 p.m. (13:00), followed by a gradual decrease into the afternoon and evening hours. In order to figure out what this pattern might mean, the same data was plotted versus time of day but it was broken out by type of cruelty, using just the incidents involving simple/gross neglect (code A) (plotted in red) and those involving intentional cruelty (code I) (plotted in blue) (see Figure 9).

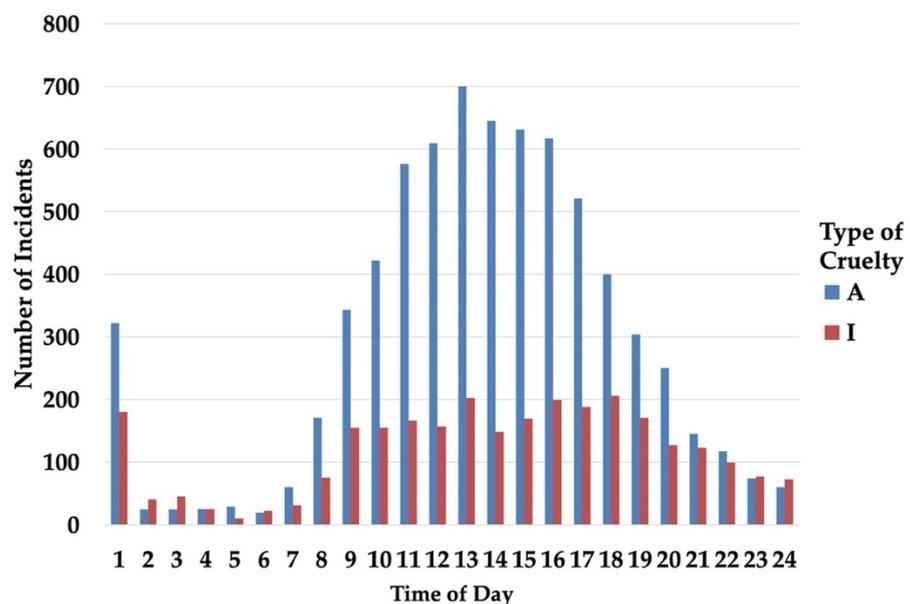


Figure 9. Time of Day of Neglect vs. Intentional Cruelty Incidents.

As discussed above, Palais (2020c, fig. 4) plotted the age range of offenders vs. the time of day when animal cruelty incidents occurred, using the 2018 NIBRS animal cruelty data. She found that offenders in the 20 to 30-year age range tended to commit their crimes either in the morning from 7–11 a.m. (7:00–11:00 h) or in the late afternoon around 6 p.m. (18:00 h), whereas the majority of adults appeared to commit their crimes in the middle of the day. Since simple/gross neglect (coded as A) dominates the data (69%), therefore it makes sense that the temporal signature of these crimes (shown in blue) would give the same pattern, with a peak around midday. What is interesting, however, is that the incidents of intentional abuse (which make up 28% of the data, see Figure 7) show a very different, more random pattern, with a small peak around 1 p.m. (13:00 h) and another slight increase in the mid to late afternoon. This makes sense because intentional cruelty is more likely to be situational, more impulsive, and related to other stress in a person's life, which would not be the case for neglect.

These conclusions may or may not be meaningful and depend on whether or not the times recorded in the NIBRS actually reflect the time of day that an animal was harmed or if the time is simply an artefact in the reporting/recording of the data. Therefore, it may be difficult to draw any conclusions yet from this information. It is still worth highlighting these observations for others to use for future research, and to see if the same patterns are found in future animal cruelty data, which will hopefully become more reliable as data is collected by more jurisdictions across the country.

### 3.5. Co-Occurring Crimes and Animal Cruelty

Palais (2020a, 2020b, 2020d) analyzed the 2018 NIBRS animal cruelty data and looked at the co-occurring offenses associated with the two most common types of animal cruelty (i.e., simple/gross neglect (A) and intentional cruelty (I)). The analysis focused on just the incidents that took place at a home/residence (Palais 2020b, fig. 5). The four most common co-occurring offenses associated with incidents of animal neglect in a home location were aggravated assault (29%) drug/narcotics violations (15%), vandalism (14%), and simple assault (13%). The four most common co-occurring crimes associated with intentional animal cruelty occurring at a home/residence, were aggravated assault (27%), vandalism (22%), simple assault (18%), and burglary (12%). Palais (2020a, fig. 3) also looked at the most common co-occurring offenses in the 2018 data associated with just intentional animal cruelty, but for all locations, and not just those incidents occurring at a home. She found that simple assault, vandalism, and aggravated assault were the three most common types of co-occurring crimes associated with intentional cruelty, followed by burglary and weapons laws violations occurring in approximately equal numbers.

The results from 2019 are consistent with the earlier work of Palais (2020a, 2020b, 2020d). Figure 10 shows the most common co-occurring offenses that took place in all locations (not just those at a home/residence), with neglect (A) and intentional cruelty (I) plotted separately. The figure shows that for incidents of neglect (code A, blue bars), the three most common types of co-occurring offenses were simple assault (31%), vandalism, (15%) and drug violations (14%). Aggravated assault, all other larceny, and weapons law violations each accounted for 10% of the incidents. For incidents of intentional cruelty (I, red bars), the four most common co-occurring offenses were simple assault (24%), vandalism (20%), aggravated assault (17%), and intimidation (11%), with weapons law violations (10%) and burglary (8%) also represented.

These data show that regardless of the location where animal cruelty takes place, that the most common types of offenses associated with incidents of animal cruelty (both neglect and intentional cruelty) are simple and aggravated assault (implies the use of a weapon), vandalism, drugs/narcotics violations, burglary, weapons law violations, intimidation, and other forms of larceny. As with the time-of-day data, it is probably premature to draw any firm conclusions about the types of co-occurring crime associated with different types of animal cruelty, given the limited amount of data and all of the uncertainties associated with the NIBRS. This will be discussed in more detail below.

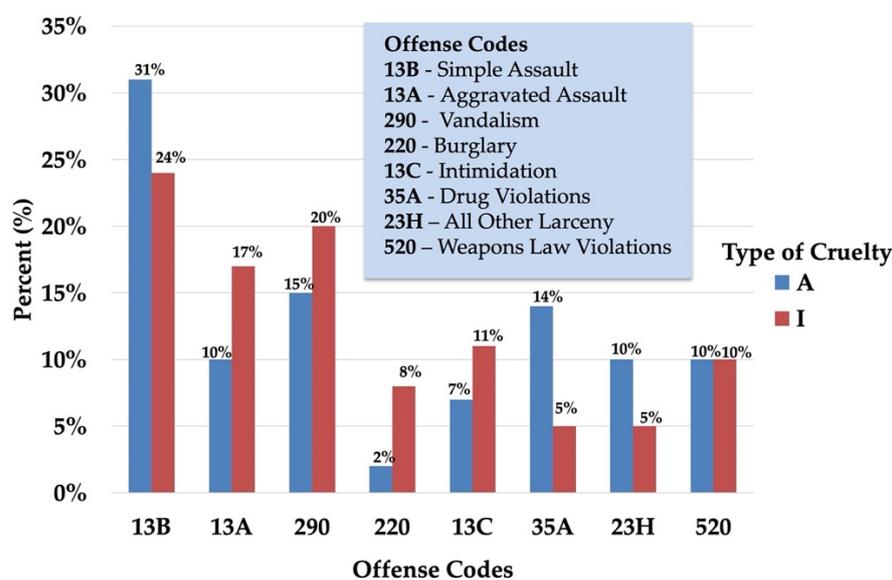


Figure 10. Co Occurring Offenses as a Function of Type of Animal Cruelty (A) and (I).

#### 4. Discussion

As discussed earlier in this paper, the original motivation for incorporating data about crimes involving animal cruelty was based on empirical studies of the link between the co-occurrence of animal cruelty and various forms of inter-personal violence (Levitt 2016; Ascione 1999, 2001; Arluke and Lockwood 1997). It should be remembered that the data on co-occurring crimes may not be providing an accurate picture of the extent of these associations, nationwide, because the incidents from Delaware (the state which dominates the database, with the highest number of incidents) had the lowest percentage of co-occurring offenses reported. Hopefully, in the future, as more and more states begin collecting animal cruelty data, they will do a better job of capturing information about the other crimes occurring in association with animal cruelty.

On the other hand, it is clear from analysis of the NIBRS data that animal cruelty is not happening in a vacuum, and although the 2019 data suggests that the majority of incidents (~94%) do not have other crimes associated with them, the current data do not support a relationship between offenders who commit crimes of animal cruelty and those committing sex offenses (since sex offenses were not prominent among the co-occurring crimes found to occur in association with animal cruelty). This is despite the fact that such an association has been well documented in the literature (Hoffer et al. 2018; Campbell et al. 2017, 2021; Levitt et al. 2016; Gullone 2016). Such a relationship may appear in future years of data when more law enforcement agencies from a greater number of jurisdictions are reporting data in the NIBRS and covering a greater percentage of the U.S. population.

Previous studies have examined animal cruelty perpetrated by both adults and children and its relationship to other forms of criminal behavior (Randour et al. 2021; Bright et al. 2018; Hoffer et al. 2018; Levitt et al. 2016; McEwen et al. 2014; Dedel 2012; Vaughn et al. 2009; DeGue and DiLillo 2009). Only a few of these studies (Hoffer et al. 2018; Levitt et al. 2016) have specifically looked at different types of animal abuse (i.e., active, passive, and animal sexual abuse). Dedel (2012) noted that neglected animals are often found in homes with people who use drugs and alcohol, and Levitt et al. (2016) found that substance abuse was also common among those who had engaged in active/intentional animal cruelty. Lockwood (2018) noted that neglect, involving either animals or people, is “an act of omission” that involves the failure to provide care and can result from both a lack of knowledge and from circumstances beyond the control of those involved. These circumstances can include the inability to provide for care due to socio-economic issues (poverty/homelessness), physical/mental health issues (including substance abuse/physical impairment), and other family issues.

Currently, there is not enough information to make firm conclusions about these relationships using the NIBRS data. Until more data is collected and analyzed, it will be difficult to identify which other types of crimes are more commonly associated with intentional (active) animal cruelty and which types are more commonly associated with neglect (passive animal cruelty). What is known from prior work is that animal abusers engage in a variety of violent and non-violent types of criminal behavior, and therefore, animal cruelty may be a good indicator of a person with serious antisocial behavioral issues, including callousness, aggression, and a lack of empathy toward others (Johnson 2018; Felthous and Kellert 1987). Nevertheless, there is still a lot of useful information contained in the 6% of incidents that did have co-occurring offenses associated with them, and this information can be mined to look for patterns of crime associated with animal cruelty.

#### 4.1. Intentional Animal Cruelty and Human Sexual Assault

Palais (2020a, fig. 5) used the 2018 NIBRS data to examine intentional animal cruelty and compared it to the diurnal patterns of other types of crimes known to co-occur with animal cruelty (Federal Bureau of Investigation 2019c). Using the 2017 NIBRS data, she also looked at the times of day when a variety of offenses (drug/narcotics violations, assault, destruction/vandalism, robbery, burglary/breaking and entering, and sex offenses) occurred and compared these with the time of day when animal cruelty offenses occurred. The analysis showed that the peak times of animal cruelty incidents were most similar to, and coincided with, the time of day of incidents involving sex offenses. Both types of crimes exhibited peaks around noon and less obvious peaks in the mid-late afternoon (around 3–4 p.m.) (15:00–16:00 h). This comparison was made, in part, to explore whether or not the same offenders could be responsible for both types of crimes. Figure 11 shows the same information for the 2019 NIBRS data. A similar diurnal pattern is seen, with a peak in both types of crime around 1 p.m. (13:00) and another secondary but smaller peak around 4 p.m. (16:00 h). There have been a number of studies of offenders who committed crimes involving both intentional animal cruelty and those involving family violence (sexual assault and intimate partner violence) but the time of day that the offenses took place has generally not been examined (Hoffer et al. 2018; Campbell et al. 2017; Levitt 2016; Gullone 2016; Ascione 1999).

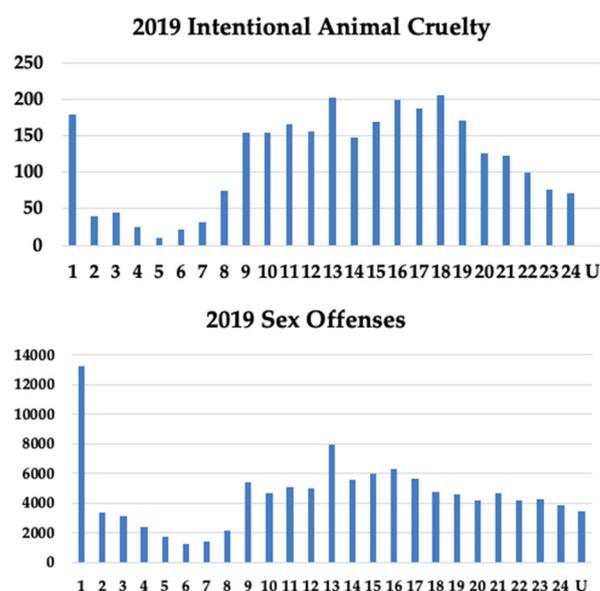


Figure 11. Time of Day for 2019 Intentional Animal Cruelty and Sex Offenses.

NIBRS data from 2011 was analyzed by the Office for Victims of Crime (OVC). That study showed that most (>57%) sexual assaults of juveniles (children under the age of 18)

occurred during the daytime from about 8 a.m. (8:00 h) until about 4 p.m. (16:00 h), with distinct time periods (8 a.m. (8:00 h), 12 p.m. (12:00 h) and 3 p.m. (15:00 h)). Those are the hours that often coincide with meals and snack times ([Office for Victims of Crime n.d.](#)).

Interestingly, in the same way that the location of animal cruelty incidents most often took place at a home/residence (~69% of animal cruelty takes place at a home/residence; [Figure 3](#)), more than 50% of sexual assault victimizations involving juvenile females (<11 years of age) were committed by a family member or friend “behind closed doors” at a residence. In the case of both juveniles and adults, the majority of offenders were known to the victims. The most common location for these incidents were in a home or residence, except in cases where the offender was a stranger. In those incidents the most common location was a street or sidewalk ([Office for Victims of Crime n.d.](#)).

In a study that looked at juvenile sexual assaults, [Smith et al. \(2018\)](#) analyzed NIBRS data from 2015 and found that more than two-thirds of juvenile sexual assaults occurred during daytime hours, between about 8 in the morning and 8 (20) in the evening, whereas adult victimizations most often occurred between 12 midnight (24) and 4 a.m. (4). Data from the analysis of 2011 NIBRS data done by the Office for Victims of Crime found that when the victim was an adult (>18 years of age) it most often took place in the evening between 10 p.m. (22:00 h) and 3 a.m. (3:00 h), by an intimate partner, friend, or acquaintance and they were usually older than 25 years of age ([Office for Victims of Crime n.d.](#)).

Finally, [Finkelhor and Ormrod \(2000\)](#) analyzed NIBRS data from 1997, when only 12 states were participating in NIBRS. Nevertheless, their results showed that most offenders/perpetrators of crimes against juveniles (including sex offenses) were known to the victim, with only 11% being strangers. Family members were found to be involved in 28% of sex offenses against juveniles, with girls outnumbering boys as victims (82% and 18%, respectively).

Although these observations say nothing about whether the same offenders are responsible for both types of crime (correlation does not imply causation), it does provide a motivation for law enforcement to be hypervigilant around the times of day when both of these types of crimes are known to take place. In fact, as discussed above, in [Section 3.5](#), sex offenses were not common among the list of co-occurring offenses taking place in association with individual animal cruelty incidents. The fact that some expected relationships may not emerge in the NIBRS data, that do appear in the literature, may be in part because previous studies have relied on self-reports or other methods of data collection and are not official records ([Levitt et al. 2016](#)). Another explanation may be due to the well-known fact that a lot of crime is not reported to authorities and only becomes known when crime victimization surveys are conducted ([National Academy of Sciences, Engineering, and Medicine 2016, 2018](#); [Addington 2009](#)). Finally, because the data is anonymized, there is no way to really know who the offenders are and if they have also been involved in other crimes involving sex offenses. If it can be proven that midday and mid-afternoon are times when animal cruelty and juvenile sex offenses are more likely to occur, then perhaps at least some of the crimes can be prevented by using data from the NIBRS, as suggested by ([LeCates 2018](#)) in his article on data-driven, intelligence-led policing.

The main take-aways from these analyses are that both intentional animal cruelty and a majority of juvenile sexual assaults may occur at the hands of family members or friends, who take advantage of being at home alone with a vulnerable animal or child who they can victimize when no one else is there ([Palais 2020a](#)). This idea is supported by the work of [Campbell et al. \(2017\)](#) who reported that 48% of suspects of intimate partner violence (IPV) were unemployed at the time of the incident, making it more likely that they might be at home alone with a vulnerable juvenile. The data presented here also seem to suggest that there is more of a risk of animal cruelty occurring during daylight hours as opposed to nighttime, however the data needs to be better understood before true conclusions can be drawn.

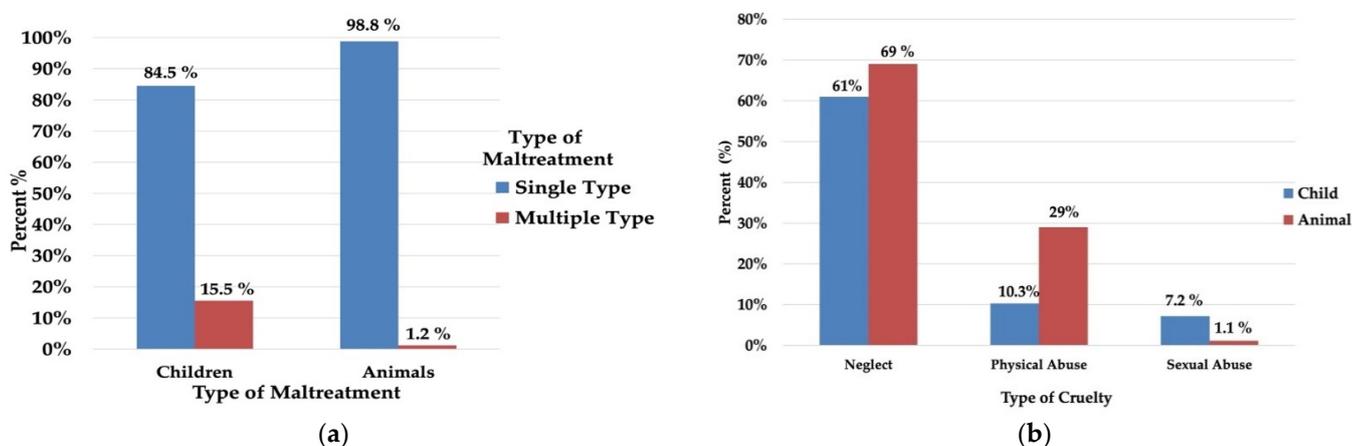
It is also worth noting that if an animal is harmed in an animal cruelty incident, they are not considered victims. This is primarily because animal cruelty was designated by the

FBI as a “crime against society” and therefore “society” is the victim and not the animal. In addition, as mentioned at the beginning of the paper, at least in the United States, animals are considered property, and they have no rights in the same way that person would (Favre 2017). As a result, no victim information is collected in the NIBRS (e.g., species, breed, gender, age, etc.) nor any information about the relationship between the animal and the offender, as is the case in “crimes against persons” when a human is harmed by another human.

#### 4.2. Child Maltreatment and Animal Cruelty

Studies of child maltreatment and animal cruelty have also examined whether children who are exposed to maltreatment or witness animals being harmed are more likely, themselves, to go on to become animal abusers or be involved in criminal behavior in the future. These prior studies have had mixed findings, due to a variety of limitations in the individual studies. Nevertheless, most research supports the link between animal cruelty and other violent offenses, especially domestic violence. (Randour et al. 2021; National Children’s Advocacy Center 2019; Johnson 2018; Randour and Gupta 2016; McEwen et al. 2014; DeGue and DiLillo 2009; Hackett and Uprichard 2007). Johnson (2018) published an excellent literature review that discussed the “missed dangerous connection” between animal cruelty and human violence. Animal cruelty was found to be one of the best predictors of future violent and non-violent behavior toward humans. Studies cited in the paper also suggest that those who commit acts of violence toward humans engage in animal cruelty, not only because they lack empathy, but also as a way to control and intimidate their victims.

A comparison of the 2019 data from the U.S. Department of Health and Human Services on child maltreatment with and 2019 animal cruelty data from NIBRS is discussed in this study. Child maltreatment is categorized as “single type” and “multiple type”. These terms are analogous to the single types of animal cruelty, as opposed to when there are multiple types of cruelty involved (see Figure 7). This paper has focused primarily on only the single type cruelty since the number of multiple type cases is very small (1.1% of all incidents). Single type child maltreatment involves neglect, physical abuse, and sexual abuse, and in 2019 comprised 84.5% of all incidents of child maltreatment (Figure 12a) (U.S. Department of Health and Human Services 2019). In the case of animal cruelty, single type cruelty accounts for almost all (98.8%) types of animal cruelty incidents (Figure 12a). It is unclear if this number is meaningful or whether it is too early in the process of data collection for law enforcement officials to be familiar with and comfortable in characterizing incidents of animal cruelty. One can imagine that, with time, more NIBRS incidents will be coded with multiple types of cruelty.



**Figure 12.** (a) Comparison of Child Maltreatment and Animal Cruelty; (b) Comparison of Child Maltreatment and Animal Cruelty.

Finally, a comparison of child maltreatment and animal cruelty for the single type maltreatment cases shows a similarity in the relative proportion of cases involving neglect, physical abuse, and sexual abuse (Figure 12b). Whereas neglect accounts for 61% of child maltreatment cases, neglect accounts for 69% of animal cruelty incidents. Physical abuse accounts for 10.3% of child maltreatment cases and sexual abuse (another form of active physical abuse) accounts for 7.2% of child maltreatment cases. By combining these two types of single type child maltreatment, one gets a total of 17.5% of cases accounting for physical and sexual abuse of children. This can be compared with the percentage of animal cruelty cases involving intentional abuse (28%) and a much smaller number of incidents of animal sexual abuse (1.1%) (see both Figures 7 and 12b).

As with all the NIBRS data discussed in this paper, caution is advised in drawing too many conclusions about these results, given the limitations of the data discussed so far in this paper. Nevertheless, it does seem that neglect dominates both the cases of child maltreatment (61%) and animal cruelty incidents (69%), as compared to cases of physical/sexual abuse (for children; 17.5%) and intentional cruelty/sexual abuse (for animals 29.1%). The higher rate of animal cruelty to child maltreatment makes sense since, if animals are kept outside, animal cruelty might be more visible to neighbors and other passersby, than child maltreatment, which probably takes place behind closed doors inside the home.

## 5. Conclusions and Future Work

The purpose of this paper was to summarize what is known about crimes involving animal cruelty using data from the FBI's NIBRS crime data reporting system. Now that there are several years of incident-specific data on crimes involving animals, it is important for researchers to start looking at the data. The results presented here seem to support what is already known from previous research on the age and gender of animal cruelty offenders. New here is how other information, such as the spatiotemporal details of the crime incidents, might help predict where and when crimes involving animals are occurring. In addition to providing background about the history of crime data collection in the U.S. and the recent incorporation of animal cruelty into the NIBRS reporting, this paper has also highlighted possible flaws in the data collection system and potential biases in the way the data is being recorded, as well as information that is not currently being collected that might add value to what is already available.

Improvements to the data collection system and new approaches to looking at the data could help law enforcement officials better understand the phenomena of animal cruelty from a criminal justice and public safety perspective. Further studies of this kind and more in-depth analyses of the data could also possibly lead to a better understanding of these crimes, which might enable law enforcement officials to intervene before an incident takes place and therefore prevent it from happening. Given the importance of developing a better understanding of those who are likely to abuse children, if one can use information about animal cruelty offenders to identify those who are likely to abuse children, it might help law enforcement intervene before these crimes occur. This could be an important avenue for future research and could lead to changes in the NIBRS data collection system for animal cruelty, including developing a better understanding of the offenders involved in these crimes, and their relationship to the animals involved. It also argues for changes to the NIBRS data collection protocols so that information is collected about animal victims in the same way that it is for child victims.

Future work on the NIBRS animal cruelty data should continue to explore the finding of a midday peak in animal cruelty to check that the data are not only robust, and repeated in future years, but also to look at possible reasons why this might be occurring. It will be important to verify that the times listed in the NIBRS data actually reflect the time of the incident, as opposed to the time that someone reported the crime or that it was entered into a database. Little is known about the time of day when animal cruelty crimes occur, since no such information has been broadly available in the past. As more data become available,

it should be possible to see whether the findings from this study hold up and whether they can be explained by other data known only to law enforcement. Comparisons with data from individual communities using public records requests might be a way to look at this issue in more detail.

It will also be interesting to see what happens to the NIBRS animal cruelty data in 2020. [Campbell \(2020\)](#) speculated that reporting of pet abuse would be not as significantly impacted as was reporting of family violence during the COVID-19 pandemic which began in early 2020 ([Centers for Disease Control and Prevention 2020a, 2020b](#)). It will also be interesting to see if there are any changes to the diurnal/temporal variability in crimes of animal cruelty, which has shown up in each year of data since 2016, when the first data was collected. Because more people were staying at home during the COVID-19 pandemic, it is possible that the timing of animal cruelty offenses might change and help lead to an explanation of what is going on with these data. In other words, if abusers are not left home alone with their victims and if other adults are at home all of the time, it could be that these types of abuse cases (both for children and for animals) might be less likely to happen during periods of COVID-19 lockdown.

The limitations, challenges, and cautions that must be heeded when using NIBRS data for policy-relevant criminological research have been discussed previously in the criminal justice literature ([Addington 2015](#); [Bibel 2015](#); [Jarvis 2015](#)). While it is tempting to try and draw firm conclusions from the data presented here, it is clear from this study and the work of others that it may be premature to do so. Nevertheless, these data illustrate the importance of law enforcement officials paying attention to offenders who commit crimes involving animal cruelty and to making an effort to collect data that is as accurate as possible. Despite the limitations and the lack of coverage to date, the NIBRS database is still useful for examining crime within a single jurisdiction or for comparing jurisdictions of similar size and type (e.g., urban vs. rural) ([National Academy of Sciences, Engineering, and Medicine 2018](#); [Addington 2015](#); [Bibel 2015](#); [Jarvis 2015](#); [Snyder 2013a, 2013b](#); [Addington and Randour 2012](#); [Addington 2009](#); [Bureau of Justice Statistics n.d.](#)).

It is also important for those who are responsible for enforcing their state and local animal/child protection laws to pay attention to all crimes against both humans and animals, especially offenses that co-occur with animal cruelty. Cross-training and cross-reporting for those who deal with animals (both animal control officers and veterinarians) and human family members (e.g., child protective services, social workers, etc.) should be the norm in every state. Given that some communities do not have an animal control agency or designated officer specifically responsible for enforcing animal protection laws, more needs to be done to get law enforcement agencies to pay attention to animal welfare and crimes involving animals and work together to look at all crimes against both humans and non-human animals.

Finally, mechanisms also need to be found to create better communication and sharing of information between law enforcement and those in the animal services sector, so that critical information is not overlooked when they receive a report of an incident involving an animal ([Randour et al. 2021](#); [Randour 2019](#)). Given the recent move in some states to allow animals to be considered as victims of crime in their own right ([Favre 2016, 2017](#); [Bernays 2018](#); [Eisenstein 2016](#)), it is critically important to begin collecting information on the animal crime victims, including their relationship to the offender.

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**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study are available from several sources. Data are available on the publicly available NIBRS websites provided in the reference list. Other data are available on the Inter-university Consortium for Political and Social Research (ICPSR) website.

As discussed in the paper, anonymized data files for the years 2017–2019 were obtained directly from the Criminal Justice Information Service (CJIS), as a courtesy to the Animal Welfare Institute (AWI). Restrictions apply to the availability of that data. With the permission of both the Animal Welfare Institute and the FBI, those files can be shared with interested researchers. Researchers can also fill out a form, available online, to request NIBRS data directly from the FBI, however there is no guarantee that individual requests will be filled. <https://forms.fbi.gov/assistance-with-uniform-crime-statistics-information> (accessed on 1 October 2021).

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## References

- Addington, Lynn A. 2009. Studying the crime problem with NIBRS data: Current uses and future trends. In *Handbook on Crime and Deviance*. Edited by Marv D. Krolm, Alan J. Lizotte and Gina P. Hall. New York: Springer. [CrossRef]
- Addington, Lynn A. 2015. Research adventures with "kinda big" data: Using NIBRS to study crime. In *Envisioning Criminology: A Handbook of Emerging Research Strategies for Studying Crime and Justice*. Edited by M. D. Maltz and S. K. Rice. New York: Springer, pp. 157–63. [CrossRef]
- Addington, Lynn A., and Mary Lou Randour. 2012. *Animal Cruelty Crime Statistics: Findings from a Survey of State Uniform Crime Reporting Programs*. Washington, DC: Animal Welfare Institute.
- American Pet Products Association. 2020. Pet Industry Market Size and Ownership Statistics. Available online: [https://www.americanpetproducts.org/press\\_industrytrends.asp](https://www.americanpetproducts.org/press_industrytrends.asp) (accessed on 15 June 2021).
- Arkow, Phil, and Randall Lockwood. 2016. Definition of animal cruelty, abuse, and neglect. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra L. Reyes. Durham: Carolina Academic Press, pp. 3–23.
- Arluke, Arnold, and Randall Lockwood. 1997. Guest editor's introduction: Understanding cruelty to animals. *Society and Animals* 5: 183–93.
- Arluke, Arnold, Jack Levin, Carter Luke, and Frank Ascione. 1999. The relationship of animal abuse to violence, and other forms of antisocial behavior. *Journal of Interpersonal Violence* 14: 963–75. [CrossRef]
- Ascione, Frank R. 1999. The abuse of animals and human interpersonal violence: Making the connection. In *Child Abuse, Domestic Violence, and Animal Abuse: Linking the Circles of Compassion for Prevention and Intervention*. Edited by Frank R. Ascione and Phil Arkow. West Lafayette: Purdue University Press, pp. 50–61.
- Ascione, Frank R. 2001. Animal abuse and youth violence. *Juvenile Justice Bulletin*. Available online: <https://www.ncjrs.gov/pdffiles1/ojdp/188677.pdf> (accessed on 7 February 2021).
- Ascione, Frank R., and Kenneth Shapiro. 2009. People and animals, kindness and cruelty: Research directions, and policy implications. *Journal of Social Issues* 65: 569–87. [CrossRef]
- Ascione, Frank R., Shelby E. McDonald, Philip Tedeschi, and James Williams. 2018. The relations among animal abuse, psychological disorders, and crime: Implications for forensic assessment. *Behavioral Sciences and the Law*. [CrossRef]
- Baldry, Anna C. 2005. Animal abuse among preadolescents directly and indirectly victimized at school and at home. *Criminal Behaviour and Mental Health* 15: 97–110. [CrossRef] [PubMed]
- Bernays, Kayla A. 2018. We've still got feelings: Re-presenting pets as sentient property. *Arizona Law Review* 60: 485–508. Available online: <https://arizonalawreview.org/pdf/60-2/60arizlrev485.pdf> (accessed on 29 July 2021).
- Bibel, Daniel. 2015. Considerations and Cautions Regarding NIBRS Data: A View from the Field. *Justice Research and Policy* 16: 185–94. [CrossRef]
- Bir, Courtney, Candace C. Croney, and Nicole J. O. Widmar. 2018. U.S. residents' perceptions of dog welfare needs and canine welfare information sources. *Journal of Applied Animal Welfare Science* 22: 42–68. [CrossRef]
- Brewster, Mary P., and Shannon T. Grugan. 2016. Emerging issues and future directions in the area of animal cruelty. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 397–423.
- Bright, Melissa A., Mona Sayedul Huq, Terry Spencer, Jennifer W. Applebaum, and Nancy Hardt. 2018. Animal cruelty as an indicator of family trauma: Using adverse childhood experiences to look beyond child abuse and domestic violence. *Child Abuse and Neglect* 76: 287–96. [CrossRef]
- Bureau of Justice Statistics. n.d. About the Uniform Crime Reporting Program. The Nation's Two Crime Measures. Available online: <https://www.bjs.gov/ucrdata/abouttheucr.cfm>; <https://www.bjs.gov/ucrdata/twomeasures.cfm>. (accessed on 29 July 2021).
- Campbell, Andrew M. 2020. An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. *Forensic Science International: Reports* 2: 100089. [CrossRef]

- Campbell, Andrew M., Ralph A. Hicks, Shannon L. Thompson, and Sarah E. Wiehe. 2017. Characteristics of intimate partner violence incidents and the environments in which they occur: Victim reports to responding law enforcement officers. *Journal of Interpersonal Violence*, 0886260517704230. [CrossRef]
- Campbell, Andrew M., Shannon L. Thompson, Tara L. Harris, and Sarah E. Wiehe. 2021. Intimate Partner Violence and Pet Abuse: Responding Law Enforcement Officers' Observations and Victim Reports from the Scene. *Journal of Interpersonal Violence* 36: 2353–72. [CrossRef] [PubMed]
- Catalano, Shannan. 2015. Intimate Partner Violence, 1993–2010. Available online: <https://bjs.ojp.gov/content/pub/pdf/ipv9310.pdf> (accessed on 7 July 2021).
- Centers for Disease Control and Prevention. 2020a. Preventing Intimate Partner Violence. Available online: <https://www.cdc.gov/violenceprevention/intimatepartnerviolence/fastfact.html> (accessed on 29 June 2021).
- Centers for Disease Control and Prevention. 2020b. Evidence for Limited Early Spread of COVID-19 within the United States, January–February 2020. Available online: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6922e1.htm> (accessed on 4 July 2021).
- Dedel, Kelly. 2012. Animal Cruelty: Problem-Oriented Guide for Police. Problem-Specific Guide Series No. 65. Available online: <https://popcenter.asu.edu/content/animal-cruelty-0> (accessed on 18 July 2021).
- DeGue, Sarah, and David DiLillo. 2009. Is Animal Cruelty a “Red Flag” for Family Violence?: Investigating Co-Occurring Violence Toward Children, Partners, and Pets. *Journal of Interpersonal Violence* 24: 1036–56. [CrossRef]
- Eisenstein, Yolanda. 2016. Animal cruelty and the law: Prohibited conduct. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 47–63.
- Favre, David. 2016. The history of anti-cruelty laws: Concepts of animal welfare and animal rights. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 25–45.
- Favre, David. 2017. Animals as living property. In *The Oxford Handbook of Animal Studies*. Oxford: Oxford University Press, pp. 65–80.
- Federal Bureau of Investigation. 2015. Multi-Agency Letter in Support of the NIBRS Transition. Available online: <https://www.fbi.gov/file-repository/ucr/nibrs-joint-seal-letter-of-support-august-2015.pdf/view> (accessed on 7 July 2021).
- Federal Bureau of Investigation. 2016. Tracking Animal Cruelty: FBI Collecting Data on Crimes Against Animals. Available online: <https://www.fbi.gov/news/stories/-tracking-animal-cruelty> (accessed on 7 April 2019).
- Federal Bureau of Investigation. 2018a. 30 Questions and Answers about NIBRS Transition. Available online: <https://www.fbi.gov/file-repository/ucr/30-faqs-about-nibrs-transition-oct-2018.pdf/view> (accessed on 7 July 2021).
- Federal Bureau of Investigation. 2018b. FBI Letter on NIBRS Transition. Available online: <https://www.fbi.gov/file-repository/ucr/fbi-letter-on-nibrs-transition-071018.pdf/view> (accessed on 7 July 2021).
- Federal Bureau of Investigation. 2019a. Countdown to NIBRS. Available online: <https://www.fbi.gov/file-repository/ucr/nibrs-countdown-flyer.pdf/view> (accessed on 7 April 2019).
- Federal Bureau of Investigation. 2019b. National Incident Based Reporting System Users' Manual. Available online: <https://ucr.fbi.gov/nibrs/nibrs-user-manual/view> (accessed on 3 July 2021).
- Federal Bureau of Investigation. 2019c. 2018 NIBRS Crime Data Released. Available online: <https://www.fbi.gov/news/stories/2018-nibrs-crime-data-released-120919> (accessed on 3 July 2021).
- Federal Bureau of Investigation. 2019d. FBI Releases 2019 Crime Statistics. Available online: <https://ucr.fbi.gov/crime-in-the-u.s/2019/crime-in-the-u.s.-2019/topic-pages/cius-summary> (accessed on 8 August 2021).
- Federal Bureau of Investigation. 2020. FBI Releases 2019 Crime Statistics. Available online: <https://www.fbi.gov/news/pressrel/press-releases/fbi-releases-2019-crime-statistics> (accessed on 29 June 2021).
- Federal Bureau of Investigations. n.d.a. National Incident-Based Reporting System (NIBRS). Available online: <https://www.fbi.gov/services/cjis/ucr/nibrs> (accessed on 7 July 2021).
- Federal Bureau of Investigation. n.d.b. Crime Data Explorer (CDE). Available online: <https://crime-data-explorer.fr.cloud.gov/pages/home> (accessed on 29 June 2021).
- Felthous, Alan R., and Stephen R. Kellert. 1987. Childhood cruelty to animals and later aggression against people: A review. *American Journal of Psychiatry* 144: 270–76. [CrossRef]
- Finkelhor, David, and Richard Ormrod. 2000. Characteristics of Crimes Against Juveniles. In *Office of Juvenile Justice and Delinquency Prevention..* Available online: <https://www.ojp.gov/pdffiles1/ojdp/179034.pdf> (accessed on 20 September 2021).
- Fitzgerald, Amy J., Rochelle Stevenson, and Antonio R. Verbora. 2016. Examining Animal Abuse through a Sociological Lens: Theoretical and Empirical Developments. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 325–54.
- Flynn, Clif P. 2000. Woman's best friend: Pet abuse and the role of companion animals in the lives of battered women. *Violence against Women* 6: 162–77. Available online: [https://www.academia.edu/4964538/Womans\\_Best\\_Friend\\_Pet\\_Abuse\\_and\\_the\\_Role\\_of\\_Companion\\_Animals\\_in\\_the\\_Lives\\_of\\_Battered\\_Women?auto=citations&from=cover\\_page](https://www.academia.edu/4964538/Womans_Best_Friend_Pet_Abuse_and_the_Role_of_Companion_Animals_in_the_Lives_of_Battered_Women?auto=citations&from=cover_page) (accessed on 29 July 2021). [CrossRef]
- Flynn, Clif P. 2011. Examining the links between animal abuse and human violence. *Crime, Law, and Social Change* 55: 453–68. [CrossRef]
- Flynn, Clif P. 2012. *Understanding Animal Abuse: A Sociological Analysis*. Brooklyn: Lantern Books, 96p.

- Fox, Rebekah, and Nancy R. Gee. 2017. Great expectations: Changing social, spatial and emotional understandings of the companion animal–human relationship. *Social and Cultural Geography* 20: 43–63. [CrossRef]
- Gullone, Eleonora, and Nerida Robertson. 2008. The relationship between bullying and animal abuse in adolescents: The importance of witnessing animal abuse. *Journal of Applied Developmental Psychology* 29: 371–79. [CrossRef]
- Gullone, Eleonora. 2016. Family Violence and Animal Cruelty. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 275–300.
- Hackett, Simon, and Emma Uprichard. 2007. *Animal Abuse and Child Maltreatment: A Review of the Literature and Findings from a UK Study*. London: National Society for the Prevention of Cruelty to Children. Available online: <https://nationallinkcoalition.org/wp-content/uploads/2013/01/NSPCC-Review.pdf> (accessed on 23 July 2021).
- Heide, Kathleen M., and Alan R. Felthous. 2018. Animal maltreatment from ancient times to the 21st century: Foundation for a call to action now. *Behavioral Sciences and the Law* 36: 657–60. [CrossRef]
- Henry, Bill C. 2004. The Relationship between Animal Cruelty, Delinquency, and Attitudes toward the Treatment of Animals. *Society and Animals* 12: 185–207. [CrossRef]
- Hensley, Christopher, Suzanne E. Tallichet, and Erik L. Dutkiewicz. 2009. Recurrent Childhood Animal Cruelty: Is There a Relationship to Adult Recurrent Interpersonal Violence? *Criminal Justice Review* 34: 248–57. [CrossRef]
- Herzog, Hal A. 2007. Gender Differences in Human–Animal Interactions: A Review. *Anthrozoös* 20: 7–21. [CrossRef]
- Hoffer, Tia, Holly Hargreaves-Cormany, Yvonne Muirhead, and J. Reid Meloy. 2018. *Violence in Animal Cruelty Offenders*. Cham: Springer. [CrossRef]
- Hoffman, Christy L., Kaylee Stutz, and Terrie Vasilopoulos. 2018. An examination of adult women’s sleep quality and sleep routines in relation to pet ownership and bedsharing. *Anthrozoös* 31: 711–25. [CrossRef]
- Jarvis, John P. 2015. Examining National Incident-Based Reporting System (NIBRS) Data: Perspectives from a Quarter Century of Analysis Efforts. *Justice Research and Policy* 16: 195–210. [CrossRef]
- Johnson, Scott A. 2018. Animal cruelty, pet abuse and violence: The missed dangerous connection. *Forensic Research and Criminology International Journal* 6: 403–15. [CrossRef]
- Justice Research and Statistics Association. n.d.a Incident-Based Reporting Resource Center, State Profiles: NIBRS Coverage. Available online: <http://incidentbased.org/html/stateprofiles.htm> (accessed on 29 June 2021).
- Justice Research and Statistics Association. n.d.b Available online: <https://www.jrsa.org> (accessed on 8 July 2021).
- LeCates, Rich. 2018. Intelligence-Led Policing: Changing the Face of Crime Prevention. *Police Chief*. October 17. Available online: <https://www.policechiefmagazine.org/changing-the-face-crime-prevention/?ref=4f1d967f817ac811b21c97eea171a4d4> (accessed on 1 July 2021).
- Levitt, Lacey, Tia A. Hoffer, and Ann B. Loper. 2016. Criminal histories of a subsample of animal cruelty offenders. *Aggression and Violent Behavior* 30: 48–58. [CrossRef]
- Levitt, Lacey. 2016. Animal maltreatment: Implications for behavioral science professionals. *Behavioral Sciences and the Law* 36: 766–85. [CrossRef]
- Liao, Dan, Marcus Berzofsky, David Heller, Kelle Barrick, and Matthew DeMichele. 2015. Treatment of missing data in the FBI’s National Incident Based Reporting System: A case study of the Bakken Region, 1970–1981. Paper presented at 2015 Joint Statistical Meetings, Seattle, WA, USA, August 8–13; Available online: <http://www.asasrms.org/Proceedings/y2015/files/234045.pdf> (accessed on 29 July 2021).
- Lockwood, Randall. 2018. Animal hoarding: The challenge for mental health, law enforcement, and animal welfare professionals. *Behavioral Sciences and the Law* 36: 698–716. [CrossRef]
- McEwen, Fiona S., Terrie E. Moffitt, and Louise Arseneault. 2014. Is childhood cruelty to animals a marker for physical maltreatment in a prospective cohort study of children? *Child Abuse and Neglect* 38: 533–43. [CrossRef] [PubMed]
- Meloy, J. Reid. 2006. Empirical basis and forensic application of affective and predatory violence. *Australian and New Zealand Journal of Psychiatry* 40: 539–47. [CrossRef]
- Monsalve, Stefany, Fernando Ferreira, and Rita Garcia. 2017. The connection between animal abuse and interpersonal violence: A review from the veterinary perspective. *Research in Veterinary Science* 114: 18–26. [CrossRef]
- National Academy of Sciences, Engineering, and Medicine. 2016. *Modernizing Crime Statistics—Report 1: Defining and Classifying Crime*. Washington, DC: The National Academies Press. [CrossRef]
- National Academy of Sciences, Engineering, and Medicine. 2018. *Modernizing Crime Statistics—Report 2: New Systems for Measuring Crime*. Washington, DC: The National Academies Press. [CrossRef]
- National Archive of Criminal Justice Data. n.d. National Incident Based Reporting System Series. Available online: <https://www.icpsr.umich.edu/web/NACJD/series/128> (accessed on 29 June 2021).
- National Children’s Advocacy Center. 2019. Animal Abuse Co-Occurring with Child Maltreatment: A Bibliography. Available online: <https://calio.org/wp-content/uploads/2020/05/animal-abuse-co-occurring-bib.pdf> (accessed on 23 July 2021).
- National Crime Statistics Exchange Initiative. n.d. National Incident-Based Reporting System and National Crime Statistics Exchange (NCS-X) Initiative. Available online: <https://bjs.ojp.gov/programs/national-crime-statistics-exchange> (accessed on 29 July 2021).
- Office for Victims of Crime. n.d. National Incident-Based Reporting System: Using NIBRS Data to Understand Victimization. Available online: <https://ovc.ojp.gov/sites/g/files/xyckuh226/files/pubs/NIBRS/pfv.html> (accessed on 6 July 2021).

- Palais, Julie. 2019. *Utilizing the National Incident-Based Reporting System (NIBRS) to Study Animal Cruelty: Preliminary Results and Opportunities for Future Research*. Unpublished Capstone Research Paper. Buffalo: Canisius College.
- Palais, Julie M. 2020a. Animal Cruelty Hurts People Too: How Animal Cruelty Crime Data Can Help Police Make Their Communities Safer for All. *Police Chief Magazine*. pp. 42–48. Available online: <https://www.policechiefmagazine.org/animal-cruelty-hurts-people-too/> (accessed on 29 July 2021).
- Palais, Julie. 2020b. Crunching the Numbers on Cruelty: The National Incident-Based Reporting System Delivers Preliminary Data on Animal Cruelty Investigations. *Sheriff and Deputy Magazine*, 70–73. Available online: [http://www.ourdigitalmags.com/publication/?m=11768&i=672270&view=articleBrowser&article\\_id=3756408](http://www.ourdigitalmags.com/publication/?m=11768&i=672270&view=articleBrowser&article_id=3756408) (accessed on 29 July 2021).
- Palais, Julie. 2020c. Animal Cruelty in the U.S.: What you should know and how you can help. *Animal Care and Control Today*, pp. 19–23. Available online: <https://www.nacanet.org/animal-care-control-today-magazine/> (accessed on 29 July 2021).
- Palais, Julie. 2020d. The Link between Animal Cruelty and Public Safety: Defining the Role of the Animal Control Officer. *Public Management*. August 1, pp. 16–21. Available online: <https://icma.org/articles/pm-magazine/link-between-animal-cruelty-and-public-safety> (accessed on 29 July 2021).
- Patronek, Gary J. 1997. Issues for Veterinarians in Recognizing and Reporting Animal Neglect and Abuse. *Society and Animals* 5: 267–80. [CrossRef]
- Poggio, Eugene C., Stephen D. Kennedy, Jan M. Chaiken, and Kenneth E. Carlson. 1985. *Blueprint for the Future of the Uniform Crime Reporting Program*; Rockville: U.S. Department of Justice, Bureau of Justice Statistics, Federal Bureau of Investigation, Abt Associates, p. 341. Available online: <https://www.ojp.gov/ncjrs/virtual-library/abstracts/blueprint-future-uniform-crime-reporting-program-final-report-ucr> (accessed on 29 July 2021).
- Randour, Mary Lou, and Maya Gupta. 2016. Psychological theories of animal cruelty. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 355–75.
- Randour, Mary Lou, Martha Smith-Blackmore, Nancy Blaney, Dan DeSousa, and Audrey A. Guyony. 2021. Animal Abuse as a Type of Trauma: Lessons for Human and Animal Service Professionals. *Trauma Violence Abuse* 2: 277–88. [CrossRef]
- Randour, Mary Lou. 2019. NIBRS needs both law enforcement and animal control officers. *The “Link” and Law Enforcement: Crimes against Animals are Crimes Against People: Sheriff and Deputy: Special Issue*. pp. 12–13. Available online: [https://www.sheriffs.org/sites/default/files/2019\\_SD\\_AA.pdf](https://www.sheriffs.org/sites/default/files/2019_SD_AA.pdf) (accessed on 29 July 2021).
- Randour, Mary Lou. n.d. Including animal cruelty as a factor in assessing risk and designing interventions. *Persistently Safe Schools: The National Conference of the Hamilton Fish Institute on School and Community Violence*. pp. 103–10. Available online: <https://pdfs.semanticscholar.org/c101/5692a3f884979346cc8ae11fb68f485d88d4.pdf> (accessed on 7 July 2021).
- Reyes, Cassandra L. 2016. Statistics and measurement of animal cruelty. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 141–56.
- Rowan, Andrew, and Tamara Kartal. 2018. Dog Population and Dog Sheltering Trends in the United States of America. *Animals* 8: 68. [CrossRef]
- Schaffner, Joan E. 2011. *An Introduction to Animals and the Law*. London: Palgrave Macmillan. [CrossRef]
- Smith, Erica, Kimberly Martin, Kelle Barrick, and Nick Richardson. 2018. Leveraging NIBRS to better understand sexual violence. *Police Chief*. May. Available online: <https://www.policechiefmagazine.org/rib-leveraging-nibrs-sexual-violence/?ref=7430fa6083fd228a6e33ef329bada578> (accessed on 18 July 2021).
- Snyder, Howard L. 2013a. National Crime Statistics Exchange (NCS-X): Building on NIBRS for More Accurate National Crime Estimates. Available online: [http://www.jrsa.org/pubs/forum/jun2013\\_31-2/ncsx-print.htm](http://www.jrsa.org/pubs/forum/jun2013_31-2/ncsx-print.htm) (accessed on 29 July 2021).
- Snyder, Howard L. 2013b. NCS-X: Building a system of national crime statistics for the 21st century. *The Criminologist* 38: 19–21. Available online: [https://www.bjs.gov/content/pub/pdf/ncsx\\_system\\_snyder.pdf](https://www.bjs.gov/content/pub/pdf/ncsx_system_snyder.pdf) (accessed on 29 July 2021).
- Tallichet, Suzanne E., and Christopher Hensley. 2004. Exploring the Link between Recurrent Acts of Childhood and Adolescent Animal Cruelty and Subsequent Violent Crime. *Criminal Justice Review* 29: 304–16. [CrossRef]
- Targonski, Joseph R. 2011. *A Comparison of Imputation Methodologies in the Offenses-Known Uniform Crime Reports*. Final Report. Washington: U.S. Department of Justice. Available online: <https://www.ncjrs.gov/pdffiles1/nij/grants/235152.pdf> (accessed on 16 July 2021).
- Taylor, Nik, and Tania Signal. 2016. Animal Cruelty and Delinquency, Criminality, and Youth Violence. In *Animal Cruelty: A Multidisciplinary Approach to Understanding*, 2nd ed. Edited by Mary P. Brewster and Cassandra Reyes. Durham: Carolina Academic Press, pp. 253–73.
- U.S. Census Bureau. 2019. U.S. Census Bureau Quick Facts. Available online: <https://www.census.gov/quickfacts/fact/table/US/PST045219> (accessed on 2 July 2021).
- U.S. Department of Health and Human Services. 2019. Child Maltreatment. Available online: <https://www.acf.hhs.gov/cb/data-research/child-maltreatment> (accessed on 30 June 2021).
- Vaughn, Michael G., Qiang Fu, Matt DeLisi, Kevin M. Beaver, Brian E. Perron, Katie Terrell, and Matthew O. Howard. 2009. Correlates of cruelty to animals in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Psychiatric Research* 43: 1213–18. [CrossRef]