

Psychological Impact of the Animal-Human Bond in Disaster Preparedness and Response

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The authors present an overview of the impact of the animal-human bond on disaster management and highlight the need to further examine the relationship of animals and humans in disaster response. The human connection to animals influences compliance with individual and community evacuation plans. Search and rescue teams with canine units confront physical and emotional demands that affect both handler and animal. The culling of animal populations on a scale such as occurred during the recent foot-and-mouth epidemic in the United Kingdom affects every member of rural society. Livestock farmers and their families endure enormous emotional losses, and veterinarians and government officials who must implement these programs suffer as well. A familiarity with and understanding of these issues is important for psychiatrists and other mental health professionals who are involved in disaster preparedness and response. (*Journal of Psychiatric Practice* 2004;10:368-374)

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The relationship between humans and animals is complex, is influenced by multiple variables, and has changed over time. Social, economic, and cultural factors in different parts of the world affect attitudes and behaviors towards animals, determining whether they are thought of as companions, co-workers and family members, or as livestock and agricultural commodities.^{1,2} In the American culture, a number of trends are evident. The population of companion animal cats and dogs in the United States has grown from 98 million in 1980 to 130 million today, outstripping the growth rate in the human population.³ According to the 2003/2004 Annual National Pet Owners Survey conducted by the Pet Products Manufacturing Association, there are more pets—dogs, cats, birds, small animals, reptiles, and fish—than people in the United States. Many studies now document the stress-relieving, health-promoting, and therapeutic benefits of companion animals.^{4,5} Today, over 60% of households have pets, an increase from 56% of households in 1988, and close to 100% of today's pet owners identify their pets as members of the family.² In contrast, pets of any kind are uncommon in Japan. In other countries, some animals that were once viewed as livestock or primary economic investments are now increasingly viewed as companion animals. This development is particularly true for horses and is reflected in

the changing demographics of horse ownership in the United States.⁶ Older horses are being kept on farms, and more money is being spent on costly medical procedures to prolong the lives of these animals. However, in Western Europe, notably in France, horses are still viewed as food sources. As with companion animals, the relationship between farmers and their livestock is neither simple nor static. Herds of sheep and cattle are not only a source of income but an ongoing part of the lives of farmers and their families. The emotional connection between humans and animals that are raised for food has been described as immensely respectful and devoted, even "sacred."^{7,8}

Appreciating the nature of humans' attachment to their animals and the meaning of this relationship in different sociocultural and occupational groups has enormous practical implications for disaster management. The importance of these and other issues related

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to animals in disaster planning is only a very recent phenomenon. In the past, animals, whether pets, livestock, or in the wild, have often been considered only as an afterthought or have even been overlooked by emergency planners and the general public.⁹ In 1997, more than 90,000 cattle either froze or drowned in blizzards and subsequent floods in the north-central United States. Thousands of pigs and poultry in North Carolina were killed by the high winds and storm surge of Hurricane Floyd in 1999. Heat waves across the mid-Atlantic states in 2001 killed several million poultry. These occurrences produced economic losses, public health problems, and interrupted the food supply, resulting in huge disaster assistance costs for the American taxpayer.¹⁰

In 1992, Hurricane Andrew left humans and animals homeless in such large numbers that it was evident that disaster response had to consider more than human problems alone. Caring for animals became a critical component of providing care to people, as the needs of the animals were so clearly connected to the needs of the people.¹¹ As a result of this experience Florida became the first state to include emergency support for animals in their disaster plan. Shortly thereafter, in 1993, veterinary services were incorporated into the Federal Response Plan for disaster relief with a memorandum between the U.S. Public Health Service and the American Veterinary Medical Association (AVMA). The AVMA sponsors the Veterinary Medical Assistance Teams (VMATs), which are composed of over 120 veterinarians, technicians, and support personnel. VMAT teams are activated by the National Disaster Medical System at the request of an affected state. In addition, the Humane Society of the United States has developed disaster response services and deploys Disaster Animal Rescue Teams or DARTs. Personnel are equipped and trained to respond to the range of natural weather and geological disasters, including floods, tornadoes, hurricanes, snow and ice storms, droughts, wildfires, earthquakes, and volcanic eruptions, as well as human-caused disasters of war and terrorism, such as the attacks in New York City and Washington D.C. on September 11, 2001.

Animals are working partners in many settings—notably in law enforcement and disaster response. Police canine (K-9) units are used in a wide range of activities ranging from supporting their human counterparts in direct law enforcement to searches for contraband, drugs, and explosives. Many law enforcement units also use horse mounted officers. Canine units are used in search and rescue operations, while cadaver

dogs detect human remains. Almost 400 dogs were used following the terrorist attacks on the World Trade Center in 2001, including Federal Emergency Management Agency certified dogs, New York City K-9 units, and other trained animals. In addition to search, rescue, and cadaver work, dogs are used to provide on-site comfort to people who have been traumatized by crises. Victims, family members, emergency responders, and relief workers alike hugged and patted crisis response dogs following the 1995 bombing of the Murrah Federal Building in Oklahoma City and the 2001 attacks on the World Trade Center Towers and the Pentagon.¹²

Disaster Evacuations

The importance of understanding the power of the relationship between people and their pets is apparent during disaster evacuations. According to several studies, animal owners will risk danger to themselves and may not evacuate disaster areas unless they are assured of their animals' well-being.⁶ Moreover, the most common reason people return to an evacuation site is to rescue their pets. In a study of emergency evacuation plans for horses near an army storage site for nerve gas and blistering agents that was scheduled to be destroyed, owners were asked to put priorities on the actions they would take if given 12 hours to leave. Horse owners' greatest concern was family safety, followed by concern for their horses. Three quarters of those surveyed said that their decision to leave would be affected by their horses' safety and almost half gave first priority to animals with high emotional value, although many were owners of commercial operations with valuable livestock.¹³

Because of states' health and safety regulations, pets are not permitted in public emergency shelters and Red Cross disaster shelters only allow service animals who assist people with disabilities. Developing the capacity and resources to shelter pets as part of a community's disaster evacuation plans should be pursued. At the present time, however, pet owners need to have an individual disaster response plan that provides for their animal's safety such as "pet friendly" hotels, veterinarian boarding facilities, or local animal shelters. Farm families with livestock and large animal companions must also have emergency plans that protect people while providing assurance that animals will not be abandoned.¹⁴

Individual and community disaster planning needs to address these concerns. Veterinarians responsible for developing county and state emergency support plans

need to consult proactively with local animal owners, farmers, and rural organizations such as the county farm bureau. It is vital to provide advance education, to publish stories in the media outlining the planned response, and to discuss likely human reactions to threats to animal welfare. Once activated, VMAT team members working with local veterinarians should seek information on both humans and animals at risk. The community's large animal veterinarians are in a position to know of individual farm families' circumstances as well as their stressors and psychological vulnerabilities. They will also be able to identify local leaders and outreach resources. In a discussion of the VMAT response to hurricane Floyd,¹¹ the least prominent aspect of the emergency response was actual care of animals. Instead, bringing a sense of order to chaos and identifying who needed more support and which agencies could provide that assistance were paramount. Psychiatrists and mental health providers can consult with those involved in disaster planning for their local community and should consider forging relationships with veterinarian practices in rural farming areas.

Grieving Animal Loss

In spite of the best laid plans, the loss of companion animals and livestock may be unavoidable. While most practicing veterinarians are likely to be familiar with specific aspects of animal loss and bereavement, not everyone on the emergency response team will be; neighbors and other community members supporting individual and family losses may also be relatively unaware of these issues. Human attachment to animals may really be a unique bond, similar to but different from human attachment to humans. Many pet owners view their pets as enhancing the quality of family life by minimizing tension between family members.¹⁵ In one study, researchers determined that more than one-third of the dog owners in the study felt closer to their dogs than to any human family member.¹⁶ In another study, people performing stressful tasks in the presence of their pets had less subjective stress and lower heart rate and blood pressure than did those who performed the same task in the presence of their spouses.¹⁷ The authors of the study attributed this finding to the fact that people feel that they are being evaluated by their spouses while pets are experienced as nonjudgmental supporters.

The intensity of grief over the death of a beloved animal may take the owner by surprise, but this can be attributed to the special nature of the bond and to the

role that the animal played in the person's life. Grieving over an animal has long been a disenfranchised process. Even with the recent focus at major university veterinary schools on providing support for those who have experienced pet loss, our society has not fully acknowledged or sanctioned such mourning. The likelihood of disenfranchised grieving increases considerably in the event of livestock loss on farms in a disaster. If a decision to euthanize an animal has been involved in the loss, this may aggravate a sense of guilt, regret, or even failure. The need to cull healthy herds to contain an epidemic may be particularly devastating. It is supportive and therapeutic to tell people that grieving an animal loss is normal and that it is unnecessary and even unhealthy to minimize these feelings.^{18,19}

Rural Communities and Farm Culture

Veterinarian emergency response teams include members of small animal practices in urban or suburban settings and members of large animal practices in rural settings. Understanding that farming families are part of a rural culture with unique characteristics is critical to establishing credibility and being able to intervene effectively during a crisis. Farming as a way of life embraces a set of values that may include self-sufficiency of the family unit, the presence and value of multiple generations, children as working participants, traditional gender roles, a strong work ethic, attachment to the legacy of the family farm, a connection to nature and spirituality of life, resistance to change, and stoicism.²⁰ Farming is also one of the most stressful and dangerous occupations. Farm and ranch families must usually cope with chronically stressful circumstances, such as economic uncertainty, low cash flow, lack of separation of family and work life, family members working in close proximity, long hours, and unpredictable weather.²¹ These families are often highly resourceful and independent, attributes that may also make them more hesitant to seek outside help. This is compounded by the fact that there are fewer mental health practitioners in rural areas as well as by the barriers posed by geographical constraints and transportation difficulties. The veterinarian who attends to the farm's livestock is in a powerful position to offer support to the family, suggest options for counseling and other mental health help, and encourage follow-up.

Over the last two decades, rural farm communities in the United States have suffered major declines, along with an increase in adverse mental health problems, including depression, alcoholism, and family abuse.^{22,23}

Farmers in England and Wales have a higher mortality rate from suicide than the general population, a fact attributed to easy access to firearms in addition to the multiple chronic stresses of farm life.²⁴ Women may be at higher risk than other family members for emotional distress or psychiatric illness due to “role overload,” or the demands of maintaining and worrying about the family, working on the farm, as well as sometimes having to get a second job outside the home.²⁵

Epidemic Livestock Loss: Psychological Impact and Intervention

Recent livestock epidemics that required extensive depopulation or culling offer many lessons in the emotional toll that can be anticipated as well as what interventions may be helpful. An outbreak of *Ovine John's* disease in Australian sheep in 1995 required that the government quarantine farms and depopulate flocks. The program was suspended in 1999 because of mounting reports of severe emotional and social distress in farmers, non-farming rural families, and government employees who had to implement the destocking program. Destocking caused multiple losses beyond the actual loss of the herds of healthy sheep, leading to financial downturn and stigma. Destocking was described by farmers as traumatic and emotionally shattering: “We could hear the lambs bleating even after leaving the sheep yards, and we were no longer able to watch.” Farmers who were forced to kill their own flocks early in the program were the most profoundly affected. The government staff witnessing or conducting the slaughter were traumatized as well, and were subject to open hostility, exhaustion, and burn-out. Rural businesses blamed farmers, and both blamed the government. Children, separated from families and placed in villages to attend school, were stressed and sometimes ostracized.²⁶

The most recent outbreak of foot-and-mouth disease in Great Britain required the government to destroy nearly 4 million animals to stop the epidemic. Estimated losses to the food, agriculture, and tourist industries exceeded \$10 billion dollars.²⁷ Many farmers and families were profoundly affected psychologically and the social infrastructure of many rural communities was severely stressed. The issues identified were the same as those described in the Australian sheep epidemic, including profound guilt and shame, a feeling of failure over having lost the family farm, helplessness, anger, and grief.^{8,28} Poignant requests for comfort and support were made to farming and rural organizations

during the actual animal slaughter. In addition, many herds were starving, as supplies could not be transported to quarantined farms, further exacerbating a sense of helplessness and anguish.

Veterinarians who were interviewed felt that farmers found it easier to talk to veterinary surgeons, who were perceived as being able to relate to the loss of the animals, rather than to community caseworkers or government staff. Agencies offering practical information, such as the unions, rural farm bureaus, and veterinary surgeons, received the most calls and frequently found themselves offering emotional support.²⁹ Many of these front-line contacts found their inability to help distressed farmers so debilitating and emotionally taxing that a government-sponsored program of on-site counseling and debriefings was developed for these employees. The report noted that, initially, the workload literally doubled in veterinary practices but that there was no early increase in utilization of mental health services. Women were often the first to seek emotional help for themselves or their families. Seven out of ten callers to rural information lines were women worried about their husbands' mental health. Although the husband farmer was frequently identified as the cause of concern, the report identified two high-risk groups that were likely to be overlooked: farmer's wives, who tended to neglect their own welfare to care for their families, and children who were moved into village communities to continue schooling. Children were separated from farming parents on infected farms in the midst of great uncertainty and turmoil, with the added trauma of seeing parents and relatives in distress. Some children lost livestock that had become pets. “Playground feuding” between farming children over the perceived blame for bringing the disease to an area was also mentioned.

These experiences underscore the importance of integrating mental health into veterinary disaster response. Farm families reach out to their veterinarians, and veterinarians often have close personal relationships with the farm's family members. Those involved in agricultural preparedness and response should include individuals with psychological and behavioral expertise in developing veterinarian emergency teams' operating plans and on-going training. In contemplating the possibility of agroterrorism, a unique bioterrorist threat against livestock and agriculture, the National Science Foundation concluded that the mental health of rural populations would be disproportionately affected and that mental health outreach to farmers and ranchers would be critical to recovery.³⁰ An intentional infection of livestock by a terrorist would have an even greater

negative psychological impact than a natural epidemic. It has been found that populations who experience terrorism suffer greater mental health impairments than populations affected by natural disasters.³¹ The scenario could be further complicated if the infected herds were dispersed geographically, so that the distress extended far beyond farming communities. In such a situation, it would be critical for scientific, medical, and veterinary authorities to coordinate the provision of information and recommendations on a national scale. Government leaders must be able to send clear messages, based on a knowledge of the psychological impact of bioterrorism accompanied by the added emotional burdens of devastating animal loss and threats to our food supply.³²⁻³⁴ The reports from both the Ovine Johne epidemic in Australia and the foot-and-mouth epidemic in the United Kingdom also provided examples of interventions that were thought to be helpful. Livestock officers in Australia set up network groups of farmers to discuss economic recovery and how to develop new business skills. These groups were facilitated by the livestock officer but run by the farmers. As the group focused on educational issues, psychological and emotional themes were also aired, while the livestock officer served the role of an understanding listener. This facilitator would then move the discussion to issues over which farmers felt they had control. Examining individual circumstances in a group in which the agenda was ultimately set by the farmers offered participants a means of renewing and establishing networks as well as restoring a sense of control. It is important to note that, for the most part, farmers did not utilize government-established counseling centers that would have required the farmer to initiate the call.²⁶ The importance of active outreach was repeatedly emphasized.

Another highly successful approach was begun late in the Australian sheep epidemic. After an infected animal was identified on a farm, the local veterinarian known to the farmer would visit the family with an offer of help and ongoing support through the process of culling the herd. The offer was not pressed but a second visit was made several days later, giving the farmer a chance to absorb the acute shock of the diagnosis without being left unsupported for too long. Outside veterinarians were available to meet other practice obligations, freeing the local professional to tend to his or her own clients who had been acutely affected by the epidemic.

Anticipating the psychological impact of epidemic livestock loss on different constituencies in rural communities ensures that plans can be developed before a disaster strikes. Preparing local communities through

public education programs will mitigate the inevitable distress experienced by individuals and institutions. Drawing attention to such high-risk groups as farm women and children facilitates outreach and encourages help-seeking. Schools and faith-based and civic organizations can play important roles in prevention, support, and recovery. Educating the veterinary community about psychological stresses after disasters is also a critical part of emergency preparedness. The more the community understands about resources that will be activated or deployed if such a disaster occurs, the more quickly they can avail themselves of these services. Prompt, effective medical care in any disaster is known to be the critical first step in psychological first aid. In rural communities, rapid availability of veterinary medical care to the animal community will be equally important. Veterinarians who are attuned to their farm families' strengths and vulnerabilities are an invaluable asset in outreach planning and emotional recovery. Mental health providers need to establish a proactive liaison with their community's animal doctors so that the most appropriate aftercare can be arranged.

Veterinarians As First Responders

As first responders, veterinarians are vulnerable to the impacts of traumatic stress in natural and terrorist disasters and may themselves become a high-risk group. Like their physician counterparts, they are likely to minimize the emotional impact of the disasters they are involved in, over dedicate themselves to work, sacrifice rest and respite, and risk exhaustion and burn-out. In the culling of herds in the United Kingdom, veterinarians expressed a profound sense of sorrow and anger at having to slaughter the lives they had dedicated themselves to protect and heal. When VMAT teams were deployed to care for the search and rescue dogs at the site of 9/11 disaster at the World Trade Center, they confronted an unimaginable devastation that traumatized the entire nation.³⁵ Most recently VMAT teams participated in the depopulation, surveillance, and decontamination of birds on Virginia's poultry farms, during which 167 farms were quarantined and over 18,000 birds were killed.³⁶ The emotional or psychological effects on these teams were not reported. Emergency response teams should be trained to regularly evaluate levels of stress in themselves and each other and to understand the need for adequate rest and nutrition; they should also have access to mental health professionals who are knowledgeable in stress management. There is a clear need for empirical research studying the mental health

responses of veterinarians in these disaster situations and how veterinarians might be encouraged to utilize the services of mental health professionals.

Conclusion

This paper has provided an overview of some of the many ways that the animal-human bond may affect human beings' psychological and behavioral responses in disasters. It is critical to integrate an awareness of mental health needs in veterinarian disaster response in order to develop effective evacuation plans and manage the emotional impact of controlling livestock epidemics that require the slaughter of healthy animals. The grief experienced over losing a beloved pet or herds maintained for generations is often unrecognized or minimized in our society. Veterinary emergency response teams must be sensitive to these experiences and understand their role in sustaining the psychological well-being of members of rural farm communities as well as themselves.

The review also highlights the need to further examine the relationship of animals and humans in actual disaster response. The effective preparedness and delivery of mental health services after disasters is an integral part of the entire public health response. Understanding the intricate relationship between humans and animals is an important component of a comprehensive public health approach to disaster response and a critical element in promoting the resilience of individuals and communities.

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