



Canine Research

The difference between dead and away: An exploratory study of behavior change during companion animal euthanasia



George E. Dickinson, Heath C. Hoffmann*

Department of Sociology and Anthropology, College of Charleston, Charleston, South Carolina

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ABSTRACT

Anecdotal reports suggest that animals might have a sense of dying and death, although little sustained scientific research has been conducted on death awareness in animals. We set out to systematically gather data from veterinarians regarding their own personal observations of animal behavior when another animal is euthanized. In our survey of 153 veterinarians in South Carolina, 54% reported that they rarely, sometimes, often, or always observe a change in nearby animals' behavior at the time of euthanasia. Behavior change was most often mentioned as occurring among dogs (sudden silence, agitation, and barking), yet horses were also noted as exhibiting behavior change. The reasons offered by veterinarians for these behavior changes were detecting scent of chemical changes in the dying body, awareness that the animal is ill and/or deceased, empathy, responding to changes in the physical and emotional states of the animal, release of the euthanized animal's spirit, similar grief to that of humans, and reaction to the emotions of humans.

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"I do believe animals understand the difference between dead and away."

—54-year-old female veterinarian

Introduction

Surveys of the general public reveal a predominate belief that nonhuman animals experience loss and grief just as humans do (McGrath et al., 2013). Yet, the scientific community is more divided on the extent to which nonhuman animals experience grief and death awareness as such reports and observations tend to be largely anecdotal and potentially subject to human anthropomorphization of animal behavior. Little sustained scientific research has been conducted on death awareness—or animal thanatology (Pierce, 2013)—in animals, as this field of research is still in its infancy (Pierce, 2012, p. 470). Various accounts of animal behavior regarding dying and death exist from chimpanzees and dolphins to

elephants and birds. Studies of rats indicate increased heart rate and blood pressure when witnessing the decapitation of other rats (Balcombe et al., 2004). A fairly recent death-related animal behavior that became newsworthy was that of Oscar the cat. Oscar seemed to have a sixth sense by accurately predicting the death of patients in a Rhode Island nursing home. He would go into the room of the patient, jump onto the bed, curl up next to the patient, and await the patient's death. Oscar presided over the death of more than 25 residents in the advanced dementia unit. The behavior of Oscar had sufficient credibility to be written up in *The New England Journal of Medicine* (Dosa, 2007). Yet, what is Oscar detecting?

Veterinarian Michael W. Fox (Fox, 2007, p. 86) argues that there "can be no doubt that animals possess some understanding of death." Our own surveys of veterinarians and clients of veterinarians in the United States and veterinarians in the United Kingdom regarding euthanasia and end-of-life issues yielded unsolicited comments regarding unusual behavior of other animals, especially dogs, when an animal was euthanized in their clinic or in a home. Observations reported by veterinarians in earlier studies reported sudden silence of animals and unusual sounds or howling or whining made by certain breeds of dogs at the time that another animal is euthanized nearby. Jessica Pierce (Pierce, 2013) and others have pointed to the anecdotal ubiquity of reported behavior changes among animals after the death of a nonhuman animal.

* Address for reprint requests and correspondence: Heath C. Hoffmann, Department of Sociology and Anthropology, College of Charleston, 66 George Street, Charleston, SC 29424, USA. Tel: +1 8439538182.

E-mail address: hoffmannh@cofc.edu (H.C. Hoffmann).

What is it about animals—dogs, cats, horses, or others—that they seemingly detect death? Although we do not fully understand the depth and nature of how nonhuman animals make sense of the world, it is increasingly accepted by scholars and laypeople alike that animals have a unique way of understanding death (Pierce, 2013). Are those animals tending to detect death reacting to humans' reactions, or are they sensing something that we humans do not have the ability to note? As human behavior likely changes when it is known that someone is dying, perhaps animals (e.g., dogs and cats) respond to humans' emotional and behavioral cues. The latter is entirely possible as biologic anthropologists have found that dogs demonstrate an uncanny ability to read human cues and behavior, even accurately interpreting hand gestures and glances (Katz, 2003).

Although seemingly animals detect something at the time of death, perhaps it is because of their keen sense of smell. Neuroeconomics professor Gregory Berns (Berns, 2013, p. 196) asserts that a dog's sense of smell is "about one hundred thousand times as sensitive as that of a human." A large portion of a dog's brain, therefore, is devoted to processing smells, which Horowitz (2009, p. 71) affirms writing, "Dogs have more genes committed to coding olfactory cells, more cells, and more kinds of cells, able to detect more kinds of smells." Perhaps, animals smell the organs shutting down as another animal dies. Pierce (2013) suggests that animals have an olfactory awareness of death and dying and that Oscar the cat might be detecting chemical changes in the dying person. Horowitz (2009) observes that if dogs can detect trace amounts of chemicals we leave behind on a doorknob or a footprint, might they not also be able to detect chemicals indicating disease or even death?

Given that much of the evidence about animal behavior regarding dying and death is indeed anecdotal, and much of the literature regarding such involves grief after the death of another animal, our purpose in this exploratory research study is to determine the extent to which veterinarians have observed nonhuman animal behavior changes when a nearby animal is euthanized and, if so, why those veterinarians believe the behavior changes occur. Although anecdotes of this phenomenon are common among laypeople, we would expect veterinarians to have a certain threshold of scientific sensibility (Pierce, 2013, p. 32) and thus offer a more objective viewpoint.

Materials and methods

Procedures

From the Web site directory of the South Carolina Veterinary Medical Association, we obtained the names and addresses of its 640 veterinary members and mailed each veterinarian a questionnaire in the summer of 2015 to gather data regarding their observations of other animals in their clinic or in a home when an animal was euthanized. Before distributing this survey to the South Carolina veterinarians, we asked several practicing veterinarians to complete the survey and offer feedback that was used to improve the survey. The mailing was accompanied by a cover letter and a self-addressed stamped envelope.

The survey (see Appendix 1) largely consisted of Likert-type responses or other check-off list questions, with a few open-ended queries. Responses to open-ended queries were coded by organizing veterinarians' written remarks around common themes and key words contained within their statements. Demographic data sought of the respondents were age, sex, veterinary school attended, and year graduated. Veterinarians were asked how many animals annually they euthanized, the species of the animals,

whether other animals reacted and, if so, in what way, and veterinarians' explanation for such reactions.

This research was approved by the Institutional Review Board for the Protection of Human Subjects at the College of Charleston. Data were analyzed with SPSS version 22.0 (IBM Corp., 2013). To test significant relationships, the chi-square test of significance ($P < 0.05$) was used.

Results

For the first survey mailing, 116 completed surveys were returned (18% response rate). The low response rate led us to eliminate several questions that were yielding little variation in responses and send the abbreviated survey to a random sample of 200 of the 524 nonresponding veterinarians. This follow-up survey followed the same procedures outlined previously and yielded an additional 37 surveys (18.5% response rate on second mailing) for a total response rate of 23.9% (153 of 640). Although this return rate is rather slim, similar results were found (26%) in a survey of 1602 veterinarians in Washington state regarding the human-animal bond (Martin and Taunton, 2006).

The composition of the veterinarians who completed the survey was 46% females and 54% males; the mean age was 49.3 years (range, 26–82 years). Sixty-two percent of responding veterinarians graduated from veterinary school before 2000, with the remaining 38% graduating in the 21st century. The largest percentage of veterinarians graduated from the University of Georgia (UGA) (47%), yet 24 of the 28 US veterinary science schools were represented (South Carolina does not have a veterinary science school). Average number of animals euthanized annually by each respondent was 117 (range, 3–700; median, 100). More than 97% of all animals euthanized each year by these veterinarians are dogs and cats.

Behavioral changes of other animals at the time of euthanasia

As some of our respondents noted, the American Veterinary Medical Association and the American Animal Hospital Association recommend not euthanizing an animal in the presence of other animals, thus several of the veterinarians did not observe any behavioral changes at the time of euthanasia because they followed these recommendations. With such recommendations noted, however, 54% of responding veterinarians reported that they have observed changes in the behavior of animals nearby the animal being euthanized either rarely (22%), sometimes (18%), often (11%), or always (3%).

When asked what types of behavior changes they observed, 44% of veterinarians said that the animals nearby suddenly became quiet, and 31% reported that the animals nearby made unusual sounds. For example, a 33-year-old female veterinarian said that "It seems that dogs in the clinic that usually bark nonstop will become quiet during an euthanasia." When asked to provide examples of other behavior changes they observed, a few veterinarians (<10%) noted animals investigated, animals became agitated, and animals hid. Overwhelmingly, changes occurring in animals are much more common among dogs than other animals with 63% of veterinarians indicating that behavior change was most often observed among dogs. A smaller percentage of veterinarians indicated that multiple combinations of animals (13%) were most likely to exhibit behavior changes, followed by horses (8%), cats (5%), and horses and dogs (5%).

Regarding how other animals react to euthanasia, one 51-year-old female veterinarian said that "I have quite often seen the other animals come to greet or 'say goodbye' to the one being euthanized." A 34-year-old male veterinarian said that "I used to take my personal dog with me every night on ER shifts. She knew when I went to the drug lockbox—something serious was happening. If she

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