

The Experience of Moral Distress in Veterinary Professionals Working in Laboratory
Animal Medicine

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Nicole Reynolds

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Dr. Joan Liaschenko, PhD, RN, FAAN, Advisor

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Dedication

To those veterinary professionals and scientists who value, respect, and care for animals in research, and the animals that inspire all of us to have a voice to improve their welfare.

Abstract

Moral distress in veterinary professionals who specialize in laboratory animal medicine.

Introduction: This paper will discuss the experience of moral distress in veterinary professionals who work in the field of laboratory animal medicine (LAM). Specifically, do these veterinarians and veterinary technicians experience moral distress, what are the situations which lead to their moral distress and how do they manage this experience. Although ethical issues are prevalent within the veterinary profession, to date there are few peer review articles found to contain the words ‘moral distress’ in veterinary students and practitioners. There is little published research on whether or not moral distress is experienced among veterinary professionals who work in laboratory animal medicine.

Methods: This research used a qualitative design consisting of semi-structured interviews with eight veterinarians and four veterinary technicians either in-person or via phone. Participants were recruited from a professional listserv or referred to investigator by colleagues. Open ended questions were asked about professional practices that participants experienced as ethically challenging. The interviews were transcribed and the themes identified by the student and advisor.

Results: Depending on the audiences’ familiarity with professionals within LAM, it may or may not be surprising to find that the use of animals in research did not appear to factor into the experience of moral distress in this group of professionals. In addition, none of the four technicians described ethically challenging situations that were interpreted as moral distress. However, the veterinary technicians did describe the emotional work that was involved in caring for their patients, and the impact it had on them personally and professionally. There were several themes that were identified in the interviews and experiences that were consistent with the definition of moral distress. In veterinarians who experienced moral distress, the conditions that were found to contribute to moral distress were the negative valence of trust, an imbalance between responsibility and ability to act according to this responsibility, and what type of ethical climate was present. Of the veterinarians who did not describe experiences consistent

with the definition of moral distress, they did describe reasons that prevented escalation into moral distress such as a strong supportive community and the ability to speak openly and honestly about their experiences with researchers, upper management, and administration, an ability to balance professional responsibilities with actions that aligned with their duties towards the animals, and trust in peers and the scientific process. The results of this research provide some empirical evidence that veterinarians in the laboratory animal profession experience moral distress. Recognizing moral distress in the veterinary profession and collaborating with other researchers who study moral distress will ideally lead to education and training to mitigate the negative sequelae that have been identified in professional communities where moral distress occurs.

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CHAPTER1: INTRODUCTION

As a practicing laboratory animal veterinarian, I was initially drawn into the field of bioethics as an avenue to become a diplomate of the American College of Animal Welfare (ACAW). Normative ethics and animal welfare are intimately associated with one another. Once I learned about moral distress, it became apparent this was an experience that had been experienced in the veterinary profession and described anecdotally through books and articles, but rarely, if ever, formally studied. My bioethics thesis was an opportunity to attempt to study the experience of moral distress in veterinary professionals within laboratory animal medicine.

There is a ‘fundamental problem’ within the practice of veterinary medicine that makes ethical issues for this profession complex. [1] The fundamental problem: Is the veterinarian’s primary responsibility to the patient or to the client? [2] A second challenge for veterinary medicine is “the lack of a clear consensus about how society values animals in general and animal welfare in particular”. [3] According to philosophers who study veterinary ethics, as a general rule, veterinarians are trained as scientists and are not well prepared to face ethical dilemmas and dilemmas will be impossible for them to escape. [4] There is also an inherent dichotomy in the profession, the “twin heritage” of medicine and agriculture. [5] Medicine ideally focuses on the patient, while agriculture focuses on economics and the client. When trying to navigate these situations, it would be reasonable to look to other areas of human healthcare for examples, however, there are few equivalents. [6] One experience when engaging in ethically complex situations that may not be unique to the veterinary profession and is widely researched and known to occur in other areas of human healthcare, is moral distress.

The concept of moral distress has been in the literature for more than 30 years. Moral distress was introduced by philosopher Andrew Jameton in his book, *Nursing practice: The ethical issue*. [7] Moral distress “arises when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action.” In 1986, Bernard Rollin, a well-known philosopher in the field of veterinary medical ethics,

refers to a similar concept that he defines as “moral stress” which is “the fundamental and inescapable belief that what you are doing is totally inimical to your professional *raison d’être* .”[8] Since Jameton’s initial interpretation, the definition of moral distress has evolved and expanded beyond nursing, although the nursing perspective remains a cornerstone of the experience. Reasons for the scarce amount of moral distress research in the veterinary profession are unknown. A recent study of moral distress in veterinary practice suggests “because of the complex ethical structure, veterinarians may consider moral distress an unavoidable part of veterinary practice.” [9]. Assuming this is correct, however, still does not explain the lack of interest in studying moral distress in the veterinary profession, but rather suggests it is something the profession must accept. Moral distress is important to study in the veterinary profession because when moral distress is present it has the potential to decrease the quality of care towards the patient and damages the integrity of the profession. [10] This negatively impacts patient welfare, which runs contrary to the Veterinarian’s Oath. As of 2010, this Oath now includes strong statements to protect animal health and welfare, moving beyond the position of earlier versions which mention only treatment: [11]

“Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.”

The responsibilities outlined in this Oath - to the animals, the profession, the owners/caretakers, to society - are not prioritized. Also, of particular interest, only one of the groups mentioned in the Oath are unable to verbally advocate for themselves, leaving the veterinarian and ultimately society to act in the animal’s best interests when needed. How the veterinary profession makes decisions when these priorities conflict has been researched and typically focuses on 1) the purpose of the animal within its particular

context (i.e. food, fiber, entertainment, companionship, service or working animal, or research model); 2) what the law indicates; and 3) the ethics of the profession. Although there are several ethical theories that can be used to guide veterinary professionals when faced with conflicting responsibilities, it is often the combination of several theories between individuals that ultimately manage a decision. [12]

Society's relationship with animals is constantly evolving and contributes to changes in animal ethics. At a very basic level, animal ethics is an academic term used to describe human-animal relationships and how animals ought to be treated. Animal ethics includes animal rights, animal welfare, animal law, speciesism, animal cognition, wildlife conservation, the moral status of nonhuman animals, the concept of nonhuman personhood, human exceptionalism, the history of animal use, and theories of justice.[13] In his book, *Veterinary Medical Ethics* 2nd edition, Bernard Rollin posits that laboratory animal veterinarians developed a model in the 1980s that was used to navigate the changes in animal ethics. The result of this model was improved health and welfare of animals, better data for the researchers, improved job security and satisfaction, and increased salaries for the professionals who care for research animals. In 1985, the legislative proposals based on these ideas turned the NIH guidelines into law (The Health Research Extension Act of 1985) and amended the Animal Welfare Act (Food Security Act of 1985). [14] In support of society's dynamic views regarding animal welfare, the Animal Welfare Act (AWA) has been amended 5 times since 1985, most recently in 2013.

If moral distress is an unavoidable part of the practice of veterinary medicine, yet there are laws and regulations in place that help laboratory animal veterinarians address society's changing relationship with animals, do veterinary professionals in the field of laboratory animal medicine experience moral distress? To answer this question, a qualitative research study was implemented using semi-structured interviews with veterinary professionals who work in the field of laboratory animal medicine.

CHAPTER 2: BACKGROUND

To appreciate the ethical complexity that is inherent within the veterinary profession today, it is necessary to briefly outline the historical evolution of the profession, comparative medicine, and the progression of animal welfare. In addition, this background will provide some current views about humanity's duties towards animals (animal ethics), four branches of veterinary ethics, and how the guiding principles of the 3 Rs (Replacement, Reduction, Refinement) were created and which outline the modern day code of conduct for the scientific community when conducting studies in animals. Finally, the background will conclude with a discussion of moral distress, from its inception within the nursing profession, to the evolution of the definition, and why moral distress is important to examine within the context of the veterinary professionals who work in research.

HISTORICAL USE OF ANIMALS IN SCIENCE

There is a long history of using animals to gain knowledge about science, biology, and physiology. The Ancient Greeks (Hippocrates, Aristotle 382 BC) and Romans (Galen 130 AD) shared in the development of comparative medicine and, in essence, veterinary medicine. Aristotle believed animal minds were rudimentary forms similar to humans and used the analogy of early childhood as evidence for his beliefs. [15] Galen the Physician was a well-known surgeon at the gladiator school and a prolific writer. He dissected dead animals and performed vivisection to demonstrate physiological principles and justified the experiments as a path to the truth. [16] During the Medieval period, the advancement of medical knowledge declined and the Roman Catholic Church dominated the direction of the medical world. [17] This changed at the beginning of the 14th century as church control of how medicine was taught diminished and dissection was again possible. [18]

With dissection again permitted, progress in medicine and anatomy grew rapidly during the Renaissance period. During the Renaissance period, there was little documented public concern about animals. Albrecht von Haller (1752), known to some as the father of modern physiology wrote regarding vivisection "a species of cruelty for which I felt such a reluctance as could only be overcome by the desire of contributing to the benefit of

mankind.” [19] France became a center of experimental biology and medicine during the late 18th and early 19th centuries. Lyon (1762) and Alfort (1764) were the first known academic institutions to have the field of veterinary medicine to train veterinarians to care for horses used in war. [20] Claude Bernard (1813-1878), referred to as the father of experimental medicine, and Louis Pasteur (1827-1895) contributed to the validation of the scientific method, which included the use of animals. [21] The work of Megendie and his student Bernard and others lead to the Golden Age of scientific medicine. Soon public criticism of the use of animals in science and the development of formalized anti-cruelty organizations started in the United Kingdom (Society for the Prevention of Cruelty to Animals - SPCA), then New York (American SPCA), Philadelphia and Massachusetts. Coincidentally, these were also the first states to have the first veterinary schools in the United States. Iowa Agricultural College was the first land grant college to establish a school of veterinary medicine in 1879. [22]

BEGINNING OF LABORATORY ANIMAL MEDICINE

In 1915, Mayo Clinic in Rochester, MN was the first institution that hired a US laboratory animal veterinarian. His name was Dr. Simon D. Brimhall. [23] Organized research was new at the time and Dr. Brimhall was hired to help with the construction of a new animal facility. The head of the Division of Medicine at the Mayo clinic was a physician and a veterinarian and may have had some influence in this decision. In 1935, a veterinarian graduate student by the name of Dr. Nathan Brewer, who was trained in the scientific method, was approached to manage an animal facility at the University of Chicago. Unfortunately, many investigators at the time feared a veterinarian would dictate the conditions of care and use of animals, and they opposed the creation of this position. [24]

During this time, support and funding for science was steadily increasing from the government. This led to an increase in the number of animal facilities, but few veterinarians were devoted to laboratory animal care, the conditions for the animals were poor, and there was an increase in antivivisectionist activity. The National Society for Medical Research (NSMR) was created in 1946 by the Association of American Medical Colleges and several other supporting groups to counter the anti-science narratives and

activities of the antivivisectionists.[25] In 1952, Dr. Gesell M.D. a supporter of NSMR and the Professor and Chairman of Physiology at the University of Michigan, expressed his frustration at a business meeting that NSMR was not doing enough to tackle the issue of inhumane treatment of animals used in research. NSMR had been instrumental in the formation of the American Association of Laboratory Animal Medicine (AALAS) but this did not impact Dr. Gesell's statements and they were included in the meeting minutes and ultimately used by antivivisectionists groups to legislate restrictions of animal research.[26] Dr. Gesell passed away in 1954 and his daughter founded the Animal Welfare Institute (AWI) which to this day supports the opinion that "too many scientists are insufficiently concerned about humane treatment of animals in research." [27] This story highlights the difficult relations that still exist today between the scientific community and the animal welfare movement. Veterinarians are required to navigate this relationship when they work in laboratory animal medicine and to help themselves with potential difficult discussions, they bring their own set of professional ethics to this environment.

VETERINARY ETHICS

Veterinary ethics are ethics as related to the veterinary professionals (veterinarians, veterinary students, and veterinary technicians) directly involved in providing veterinary medical care. [28] According to Tannenbaum, there are four branches of veterinary ethics; descriptive, administrative, official and normative. Descriptive veterinary ethics is the study of the ethical views of veterinary professionals regarding their professional behavior and attitudes. Official veterinary ethics are the ethics that are created by veterinary professional organizations such as the American Veterinary Medical Association (AVMA) and are expected to be followed as a member of the organization. Administrative veterinary ethics are the ethical standards that are expected of veterinarians by the government, such as the national board of veterinary medicine and state licensing boards. Finally, there is normative veterinary ethics, which is the process of searching for the "correct" norms, or principles of right and wrong, for the behavior and attitudes of veterinary professionals. When it comes down to veterinary ethics, most veterinary professionals agree it is really the branch of normative ethics that is most important to study and discuss, but it is understood that each branch contributes to the

profession as a whole. What veterinary ethics does not include, but is intimately attached to, is animal ethics.

ANIMAL ETHICS

Animal ethics is the study of the human-animal relationship and how animals ought to be treated.[29] When there are disagreements regarding the treatment of animals, it is important that veterinary professionals understand the reason for the disagreement related to animal ethics in order to respond from a place of reason and not only emotions when discussing acceptable use of animals.[30] If we claim animals have moral status, we are indicating they have moral importance in their own right and not just in relation to humans.[31] Assuming animals have a moral standing of some sort, there are five predominant approaches to animal ethics that help answer the question of what duties humans have towards animals, and how to balance these duties towards animals with other types of duties. Social contract theory is the first of the approaches to be discussed.

Contractarianism, or social contract theory, is a human centered moral theory of philosophy. [32] There is a contract and only humans can enter into this social contract as rational, self-interested people who have something to gain from this agreement, therefore only humans have moral rights. In the contractarian theory, people only need to treat animals well enough to be healthy and fit for the person's benefit. Animal use that brings human benefit is desirable such as food or new medical treatments. Any protection of animals is secondary to human concerns and the level of protection may differ depending on how much people like the animal species in question (e.g. dogs verses rats). In this view, if no individual cares, it is not morally problematic to cause pain or suffering. [33]

Utilitarianism is one of the most well-known philosophies that has been applied to animal ethics and is often used as the justification for the use of animals in research. Maximize the well-being of those affected by your actions. Well-being requires sentience, and with sentience comes moral status. Many, and some may say all, animals are sentient and therefore have moral status. Pure utilitarians, such as Peter Singer, do not differentiate between humans and nonhumans when it comes to well-being and moral status. To do the

right thing is to favor the balance of good, and one should do something, versus nothing, if something will increase well-being. When humans are prioritized over animals (as is the situation in animal research), perhaps the best that can be accomplished for animals within the utilitarian theory is an increase in animal welfare. [34]

Tom Regan is the philosopher who is most associated with the animal rights approach to animal ethics. Those who hold an animal right's perspective believe that all normal adult mammals have inherent value of their own, are not instruments for someone else's use and benefit, and have basic moral rights. [35] The animal rights view is categorically against using animals in research and claim that research animals have their rights routinely and systematically violated. [36]

Contextual approaches are made up of different positions. One position which will be discussed is the ethics of care. The ethics of care agrees that animal capacities are important to moral decision making, and unlike utilitarianism and animal rights, there is consideration given to the different feelings that humans have towards animals and there is a place for "moral emotions" such as empathy. If the human emotion or relationship towards the animals is different, the human's ethical responsibility is different as well. As noted by Preece and Chamberlain, our intuitions about what is right and wrong in our personal actions often hinge not on treating all others equally, but on our sense of community and shared relationships with others. [37] Contextual approaches allow for more nuance in our duties towards animals. In contextual approaches to animal ethics, a person will have different obligations towards animals depending on the emotions and relationship they have with animals, for example domesticated versus animals in the wild, which leads us to the final ethical position, respect for nature.

Respect for nature is the animal ethics position that moral concern should include protecting a natural species. In this position, animals are valued more as representation of their species, and less as an individual sentient being. Genetic integrity and natural processes are of moral significance and ought to be respected by humans. [38]

Veterinary and animal ethics are not meant to provide answers to ethical questions, but they do provide frameworks to help with questions, critical discussions, and reasoning that may arise when veterinary professionals are faced with morally challenging situations that impact animal health and welfare. Ultimately, there is a role for ethics to play when you examine animal welfare and vice versa. The work in these two areas should be complementary, but in practice this has not always been the situation. [39]

ANIMAL WELFARE

There is not a simple definition of animal welfare. Animal welfare has been described as a science and a concept depending on who you engage in conversation. [40] Traditionally animal welfare scientists have focused on empirical concepts and “measuring” animal welfare as if it were a purely quantitative measure.[41] Others claim that empirical questions about animal welfare can be asked independently of ethical considerations.[42] David Fraser argues that “animal welfare encompasses many variables that can be studied scientifically and objectively and that our decisions about which variables to study, and how to interpret them in terms of an animal’s welfare, involve normative judgements about what we consider better or worse for the quality of life of animals.”[43] He believes animal welfare science and animal ethics is an integrative field and there are now more efforts on both sides to conceptualize animal welfare to incorporate values which are reflected in the AVMA’s definition of animal welfare:

“Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behavior, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter. Animal welfare refers to the state of the animal. Protecting an animal's welfare means providing for its physical and mental needs.” [44]

The importance of animal welfare within the context of veterinary medicine is also reflected in the AVMA veterinarian’s oath as noted in the introduction. When veterinarians entered into the field of laboratory animal medicine, much of their efforts

were in treating, limiting, and preventing animal diseases, and creating and maintaining standards of care for husbandry. Humane treatment of animals was less a priority at that time, compared to the negative impact of animal diseases on research results. Efforts to address the humane use of animals in research was finally reached in 1959 with development and introduction of W.M.S. Russell and R.L. Burch's *The Principles of Humane Experimental Technique*, otherwise known as The 3Rs.

THE 3Rs: REPLACEMENT, REDUCTION, REFINEMENT

The increased use of animals in research in the UK prompted the Universities Federation for Animal Welfare (UFAW) to see laboratory techniques become more humane for the animals that were used.[45] In 1954 they appointed one of their research scholars, Dr. William Russel (a zoologist) and together with his laboratory technician, Rex Burch (a microbiologist), they developed standards to address animal welfare and minimize the pain and suffering that can occur in animal research. These principles are known as the 3Rs and stand for replacement, reduction, and refinement: [46]

- **Replacement**: the use of non-animal methods over animal methods wherever possible, to achieve the same scientific aims, and research into the development and validation of new non-animal research and testing models;
- **Reduction**: where replacement is not currently possible, the minimizing of the number of animals used by, for example, better research design, appropriate statistical methods and use of information databases;
- **Refinement**: improvement of the experimental procedures and aspects of housing and husbandry so as to minimize risks to welfare.

In the words of one animal researcher and advocate, “the 3Rs reflect the moral responsibility and code of conduct that scientists should accept in conducting studies in animals, with the eventual goal of eliminating the need for animal use.”[47] In addition to the 3Rs, there are laws and mandatory regulations (the Animal Welfare Act, the Public Health Service Policy on Humane Care and Use of Laboratory Animals, and The Guide for the Care and Use of Laboratory Animals) and voluntary accreditation procedures

(Association for the Accreditation and Assessment of Laboratory Animal Care) that provide direction and oversight of animals used in research.

As DeGrazia and Beauchamp state in their guest editorial for the Cambridge Quarterly of Healthcare Ethics entitled *Reassessing Animal Research Ethics*, “animal research has long been a source of biomedical aspiration and moral concern.” [48] There is a long history of advocates on both sides of what is considered morally acceptable, what is morally unacceptable and why. The veterinary professional entered into this specialized area of veterinary medicine at the request of the physician medical researcher. The expanding empirical evidence that non-human animals have emotions, are sentient, and feel pain according to similar mechanisms as humans experience the world, continue at the same pace as the rationalizations for why it is necessary to use animals to model human diseases, to understand the details of biology, to cure and treat disease, and to ensure safety. It may be a good talking point that in an ideal world we would have alternative methods to using animals to understand the complexity in biology and disease, however it is not this straightforward. Scientific research and the medical community are much more than just finding a cure for diseases, treating patients, and increasing the quality and quantity of our lives. They are also business organizations, which provide careers and contribute to education and the economy. The public narrative of the individuals who work in the area of research and medicine is a person who is choosing a noble career, which implies an expectation of high moral principles and ideals. One possible outcome for healthcare professionals when these moral principles and ideals are not able to be acted upon by the person who works within the organization or within the scope of their professional responsibilities, is moral distress.

MORAL DISTRESS

Within the past 34 years the definition of moral distress has expanded from the initial definition of “knows the right thing to do but institutional restraints make it nearly impossible to pursue the right course of action” to a definition that includes a taxonomy and is understood to be a transdisciplinary experience. [49-51] Moral distress is more than moral uncertainty; when someone is unsure of the values or even what the moral

problem may be. Moral distress is not the same as a moral dilemma, in which two or more principles apply, but they support an inconsistent course of action. [52] Some of the difficulties with studying moral distress in health care fields is the inconsistent nomenclature and lack of consensus in definition. [53]

There are a variety of terms that have been used to describe the experience of moral distress. A similar experience has been identified and discussed in veterinary medicine in 1986 by Bernard Rollin who referred to the experience as “moral stress”. The experience of moral distress was first identified in the nursing community and today remains the focus of most of the research and empirical evidence. Qualitative research has been used historically to research moral distress and is still used today. For those who do study moral distress, it is known that not all stress surrounding moral issues becomes moral distress and negatively impacts an individual’s moral agency or integrity. Stress is not necessarily undesirable and can lead to moral eustress. [54]

In addition to the various discussions about the definition of moral distress and the ongoing research, there are efforts to create instruments to measure the “ethical climates” and the impact of moral distress within healthcare environments.[55-56] The first moral distress scale (MDS) developed by Corely combined moral concepts, role conflict theory, and value theory.[57] When the MDS was used in a group of nurses, additional variables that surrounded the experience of moral distress emerged. These variables were individual responsibility, actions that were not in the patient’s best interest, and a level of deception. It was also determined that autonomy (in terms of the power to do what one recognizes needs to be done) and keeping power and responsibility in equilibrium were also important when engaging in situations that had a potential to lead to moral distress. The ideas of initial distress (anger, frustration, anxiety) and reactive distress were also identified and if or how they might contribute to moral distress. [58]

In 2000, researchers Webster and Baylis felt the definition of moral distress was too narrow. [59] The definition placed too much emphasis on the person and did not capture the external circumstances that were beyond the control of the person experiencing moral distress. Furthermore, they felt that if the external environment was not also examined, but did contribute to moral distress, by not researching the external characteristics, there

is a risk of “legitimizing and perpetuating practices and behaviors that erode fabric of personal lives that we share as a moral community.” [60] Thus external factors were researched and were added to the evolving definition.

Medical care continues to become more complex and expensive adding to external pressure for healthcare professionals to meet and exceed the expectations of their patients and patients’ families. Since 2004, the list of the factors and outcomes that have been identified since studying moral distress include, but are not limited to: an increase in consumer demand, pressure to increase efficiency, prolonging life, performing unnecessary tests, the desire to tell the truth, seeing patients as medical objects, professional relations, no formal way to discuss ethical dilemmas, the ethical climate of the organization, less perceived collaboration, responsibility to implement a plan of care they have had little input in formulating, futility cases, unsafe patient care, attrition, burnout not caused by routine burdens of patient care but caused by powerlessness related to hierarchical power structures, ineffective or obstructive policies, dysfunctional communication patterns, lack of resources, repeat exposure to distressing events, conscientious objection or withdrawal from the profession, finance as well as cultural elements such as disparity in goals and philosophy, power differentials between disciplines, and having a strong emotional connection and commitment to a public purpose.[61- 66] What this list illustrates is that moral distress is a shared responsibility between those who experience moral distress and those environments that ignore or are oblivious to the negative impact it has on patient care and outcomes and the employees who have the experience. Moral obligations of a profession are established in and through community and as such are based on societal values which are both personal and professional. [67]

Veterinary professionals also have obligations that are based on societal values which are both personal and professional, yet there is a lack of research in this field regarding the experience of moral distress. Until recently, the majority of the research has been on moral reasoning, moral behavior, moral judgement, mostly in veterinary students, and how private practice veterinarians manage ethical dilemmas, especially around the practice of euthanasia of healthy pets, financial reasons, and procedures that are not

medically indicated, such as ear cropping or declawing.[68-71] In the field of animal research, sociologist Arnold Arluke and others have studied scientists, laboratory staff and the relationship they have with research animals and society, but not specifically the veterinary profession or moral distress. [72-73] What they do discuss is the emotional part of the work that is challenging and has research participants creating terms such as “the path of demons” and “a sacrifice of life for life” to describe difficult feelings. Recently there have been a handful papers published on moral distress in veterinary practice and at least one appears to be focused surveys of all veterinary practitioners who self-reported the experience of moral distress.[74] Moses et al found that indeed veterinarians do experience moral distress and suggest it may “contribute to the development of mental health problems in the profession” which have been found with ethically significant moral distress in other professions. [75] In laboratory animal medicine, the relationship between the animal and the veterinary professional is situated slightly differently compared to other veterinary fields because of the laws and regulations that are embedded within the work. Studying moral distress in this group of veterinary professionals may help understand the intrinsic and extrinsic characteristics that contribute to moral distress but have not yet been examined, and which could ultimately benefit from the collective wisdom of other moral distress researchers.

CHAPTER 3: METHODS

RESEARCH DESIGN

Narrative inquiry is a useful approach to study moral distress in healthcare professionals. Narratives, in the form of unstructured interviews, allow respondents to describe their experiences, how they acted and why, what they learned from the experience, and how they use this experience and knowledge to navigate other similar or difficult moral situations.[76] In the words of one qualitative researcher, “narratives are not static moments in time and gain meaning as we reflect and recollect situations.”[77] “When others open up their lives for us to investigate, it is a gift for both the speaker who is heard and for the listener who learns something from the investigation.” [78]

Using open ended questions set the tone and allowed the interaction to be more of a conversation and less like an interview. [79] Referred to as emergent design, this process allows flexibility and the interview becomes a shared experience. [80] Participants are able to describe contextual details and the interviewer is able to ask follow-up questions that can be valuable to clarify responses. In this research, the narrative approach is being used not only to determine if veterinary professionals in laboratory animal medicine have the experience of moral distress, but as a pilot study to identify and direct future research that may involve mixed and quantitative methods such as a moral distress scale. If moral distress is recognized in laboratory animal veterinary professionals, mixed methods, including quantitative methods, can subsequently be used to measure the phenomenon and explore the multiple variables in relationship to using larger survey samples. [81] In theory, having a valid instrument to measure and compare outcomes can determine effective interventions to prevent and mitigate any negative effects of moral distress.

PARTICIPANTS and SETTINGS:

Veterinarians and veterinary technicians were recruited using the professional listserv COMPMED, which is an abbreviation for comparative medicine; another term used to describe the translational goal and nature of animal research. Initially twelve individuals contacted the researcher via the listserv for additional information before agreeing to participate. Two of the twelve individuals did not respond after initial follow-up. Two

participants were referred to the study by word of mouth. Eight veterinarians and four veterinary technicians completed the interviews and were included in the analysis (Table 1).

Table 1: Demographics

Pseudonym/Role	Sex	Years in vet med	Years in LAM	Any training in ethics
<i>Marta/Vet</i>	<i>F</i>	<i>4</i>	<i>3</i>	<i>Yes</i>
<i>Tracey/Vet</i>	<i>F</i>	<i>7</i>	<i>7</i>	<i>Yes</i>
<i>Becky/Tech</i>	<i>F</i>	<i>15</i>	<i>4</i>	<i>Yes</i>
<i>Charlie/Tech</i>	<i>F</i>	<i>15</i>	<i>10</i>	<i>No</i>
<i>Margaret/Tech</i>	<i>F</i>	<i>14</i>	<i>13</i>	<i>No</i>
<i>Chris/Tech</i>	<i>F</i>	<i>15</i>	<i>13</i>	<i>Yes</i>
<i>Mark W/Vet</i>	<i>M</i>	<i>29</i>	<i>29</i>	<i>Yes</i>
<i>John/Vet</i>	<i>M</i>	<i>18</i>	<i>18</i>	<i>No</i>
<i>Roger/Vet</i>	<i>M</i>	<i>18</i>	<i>12</i>	<i>No</i>
<i>Bob/Vet</i>	<i>M</i>	<i>33</i>	<i>30</i>	<i>No</i>
<i>Leroy/Vet</i>	<i>M</i>	<i>56</i>	<i>56</i>	<i>Yes</i>
<i>Dr. G/Vet</i>	<i>M</i>	<i>38</i>	<i>26</i>	<i>No</i>

Veterinarians with a minimum of three years of work experience in a research setting were eligible to participate. This three-year requirement represents the typical time spent in a formal laboratory animal medicine residency program. Veterinary technicians with a minimum of four years in a research environment were invited to participate. The reason for this difference in experience is a person would need four years of work experience to be eligible to be an American Association for Laboratory Animal Science (AALAS) technologist and to develop a working knowledge of the regulations in the field of laboratory animal medicine. In addition to the four-year work requirement for veterinary technicians, only technicians who had completed an American Veterinary Medical Association (AVMA) accredited training program and were credentialed were recruited. Completion of an AVMA accredited training program indicates a commitment to and preference for becoming a veterinary technician. Maintaining credentials involves active participation in continuing education, which indicates a duty to advancing their

professional knowledge and skills. This combination of formal education and experience in the veterinarians and veterinary technicians was important for the participants to have so that they were able to reflect on situations that provided them with opportunities for growth, moving beyond initial reactions to first time encounters with stressful events.

Seven of the interviews were conducted over the phone with five individuals interviewed in person, in a location of convenience for the participant. All twelve interviews were audio recorded. Participants filled out a short form with demographic information and selected or were given a pseudonym. Audio recordings were uploaded via the University of Minnesota internet to a HIPPA compliant transcription service routinely used by the Center for Bioethics. Once transcribed, any identifying information was removed including institutional names, states, places of employment, years, names of peers, employees and colleagues, and any details of specific research. Consent forms, demographic information, audio and transcribed interviews were securely stored in UMN google drive, shared only with the advisor. Dedoose online software version 8.0 was used to organize and assess qualitative data and provided a secure audit trail for edits to the transcripts. Interviews took approximately 35-90 minutes to conduct and were carried out over a six-week period during June and July of 2016.

ETHICS

This research protocol was reviewed and approved by the University of Minnesota Institutional Review Board. Transcription services were paid for by the student. The student has spent her professional career as a laboratory animal veterinarian. Although this fact will have contributed to bias during the analysis, it was also helpful to establish a level of trust with the participants, given the sensitive nature of animal research. In addition, the student was able to provide contextual background (in terms of regulations, terminology and abbreviations) to her advisor, when needed, during analysis and discussion.

DATA ANALYSIS

Analysis of the data began with the student and adviser reading through the narratives independent of each other and using open coding to apply concepts to the data. Passages

that indicated a level of stress about a difficult decision communicated by the participant, or that illuminated a positive or negative affective state associated with an intra-professional relationship were coded. Passages were given a one-word code or short phrase to best describe an action, thought or concept that was expressed when describing conflicting responsibilities and how they attempted to navigate the situation. Memoing was used as needed to capture the makeup of a passage and to explore the thought process of how the codes and themes evolved during open discussion between the student and advisor. Once the narratives were independently coded, both coders reviewed the data together for consensual agreement.

Coders discussed the open codes and consolidated related codes into concepts, sub-themes, and higher-level themes. Passages that were not identified by both coders, or after discussion about applied codes, did not result in agreement, were removed from further analysis. Participants were consolidated into two groups. Those who indicated experiences consistent with the definition of moral distress and those who did not appear to experience moral distress. Final passages were examined together for agreement. Most passages represented one of the three themes. However, there were several sections of the narratives which were complex and felt to represent two or even all three of the main themes.

Participants with passages that were considered to contribute negatively to their professional integrity in at least two or more of the themes when describing conflicting professional responsibilities were identified as having the experience of moral distress. Each theme was not a stand-alone theme, but were, at times, related to each other. When that relationship was present, the participants then described moral distress. That said, there were also passages that clearly indicated a theme with a negative or positive valence, but it was a single situation and not ongoing or systemic. Examples of these negative contributions were: lack of trust in peers, management, or the Institutional Animal Care and Use Committee (IACUC); an unsupportive community or difficult culture to navigate, a culture dismissive of concerns, or that used power in place of a discussion; or situations that were described as an imbalance between responsibility towards the animals and the inability to act according to this responsibility.

CHAPTER 4: FINDINGS

The results of the study indicated the following:

- The veterinary technicians (n=4) appeared different compared to the veterinarians and they did not experience moral distress;
- The veterinarians fell into two categories;
 - Those who described experiences consistent with a definition of moral distress (n=3)
 - Those who did not describe experiences consistent with moral distress (n=5)

Three themes emerged during analysis. These themes were trust, the balance of professional responsibility with ability to act according to these responsibilities, and the ethical climate of the organization. (Table 2) If the theme appeared to contribute a neutral or positive valence to the moral agency and/or integrity of the participants, they described how they were successful in navigating situations with conflicting values. The veterinarians who described the experience of moral distress mentioned one or more of the following situations which contributed a negative valence to their moral agency and or integrity:

- No trust and a lack of confidence in the IACUC process at their institution or the people involved in the research itself
- Their responsibility for the animal was dismissed or viewed as not important by others in higher positions of authority which prevented them from acting in the interest of the animals, despite presenting quality evidence
- A culture that was difficult to navigate, lack of administrative support, professional isolation within the research environment to discuss concerns to resolution; a lack of a moral community to discuss the emotional work.

There were variations in the levels of trust, the amounts of balance between their responsibilities and their abilities to act, and the “temperatures” of the ethical climates for each of the individuals. There were also several passages that represented more than one theme at the same time.

Table 2: Overall Themes

Themes	Positive Valence	Negative Valence
<p align="center">TRUST {Goodwill and competence}</p>	<ul style="list-style-type: none"> • Science is noble • Saving lives • Positive contribute to society • Working with smart people • Educating 	<ul style="list-style-type: none"> • Distrust of IACUC process and researchers • Administration only concerned with funding and making well-funded researchers happy • Not interested in animal welfare, seen as unimportant, emotional not scientific • Lack of transparency and truth telling
<p align="center">BALANCE {Between responsibility and actions}</p>	<ul style="list-style-type: none"> • Make positive impact for animals • Minimize harm to animals • Decrease stress and distress in animals • Shared responsibility • Quality data 	<ul style="list-style-type: none"> • High responsibility and public duty • High accountability • Low authority • Low ability to act to make positive impact • Unable to contribute to success of research • Improvements for animals not valued
<p align="center">ETHICAL CLIMATE {Community and Culture}</p>	<ul style="list-style-type: none"> • Sense of community • Open dialogue • Able to question • Supportive • Difficulties acknowledged • Reflected on shared experiences together • Seen as colleagues • Input valued • Ability to share emotional part of work 	<ul style="list-style-type: none"> • Difficult culture to navigate • Dismissive • Use power and money in place of conversation • Hostile and argumentative • Isolated • Questions not welcomed • Veterinarians viewed as barrier to research and results

TRUST (Goodwill and Competence)

At some level, trust is an essential component for all relationships, so it is not a surprise that it is a major theme in these narratives. There are several definitions of trust and one that captures what trust means within the context of these passages is from Karen Jones' 1996 article titled "Trust as an Affective Attitude." Jones defined trust as "an affective attitude of optimism about the goodwill and competence of another as it extends to the domain of our interactions and, further, an expectation that the one trusted will be directly and favorably moved by the thought that you are counting on them." [82] Jones argues that trust is associated with discretionary power and can sometimes feel coercive. For example, in a situation where the person who is trusted by another might be moved by the thought that the truster is counting on them, but the expectation is such that the trusted person does not want that burden. There are three facts about trust in her essay: 1) the absence of trust is not distrust; 2) trust cannot be willed but it can be cultivated; and 3) trust can give "rise to beliefs that are resistant to evidence."

BALANCE (Between Responsibility and Action)

The theme of balance represents the condition of two elements ideally in equal proportions to one another. In the practice of veterinary medicine, these two elements represent professional responsibility and acting in the interest of that responsibility, which is the health and welfare of animal(s) under their care. The legal and ethical responsibilities the lab animal veterinarian have towards animals are reflected in their training, professional oath, veterinary ethics the Animal Welfare Act, Public Health Service Policy on Humane Care and Use of Laboratory Animals, and "The Guide". There is also the added responsibility of ensuring the science is able to happen while not negatively impacting results with an unnecessary "animal health or welfare" responsibility.

Veterinary technicians know the work is emotionally difficult and despite this difficulty, they have balanced these concerns with the knowledge that animals are harmed and die, and they might indeed cause this harm/death as an expectation of their employment, in order to help people or to advance a treatment. They work in research because they care about animals and because science/research helps society. The "potential" for research

results to be important to society is what they focus on when asked to recall the emotionally difficult work. The technicians self-sacrifice their “love” of animals, in that they physically will cause harm to the animals, according to an approved IACUC protocol. They care about and form attachments to the animals in order to gain their trust and help them through the harm that is caused to them in research.

ETHICAL CLIMATE (Community and Culture)

The prevailing perceptions of the standard organizational practices and procedures that have ethical content is what defines the ethical work climate. [83] In other words, certain elements of the work environment determine what contributes to ethical behavior at work. These elements can be explicit in the form of laws, policies and standard operating procedures, or can be implicit such as the usual behavior of a culture or community. Within the context of this research, community and culture are used to describe the ethical culture in which the participants worked and the positive or negative influence this climate has on their moral agency and integrity. The concepts share commonalities, but they are different in that culture can be used to help cope with situations, if you understand the values and beliefs of the culture. Community is defined as “a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings. The experience of community may differ from one setting to another.” [84] Culture is “a system of shared beliefs, values, customs, behaviors, and artifacts that the members of society use to cope with their world and with one another, and that are transmitted from generation to generation through learning.” [85]

TECHNICIANS

The veterinary technicians who were interviewed were all female with an average length in the veterinary profession of 14.75 years, with a range of 4 to 13 years spent specifically in laboratory animal medicine. The average age was 41 years with an age range of 33-49. Only one technician was a registered Laboratory Animal Technologist (RLATG) through the American Association of Laboratory Animal Science (AALAS) in addition to being a credentialed veterinary technician.

When asked about why they decided to become a veterinary technician, all four participants indicated a motivation to help animals and/or an affection for animals.

“It was the right combination of doing something you enjoy and doing something that I feel is helping someone, meaning either animals or people and I felt like I wasn’t doing any harm to society.” - Margaret

“Because I, of course, wanted to be a veterinarian like everybody else did when they were growing up. I started school and that was definitely not going to be for me, so I decided to go the technician route instead.” - Becky

“I knew from an early age that I wanted to work with animals.” - Chris

“I couldn't decide what I wanted to do for the longest time...But of course I've always loved the animals; that's the typical response....when I was little, what I wanted to be was a veterinarian.” - Charlie

This trait of wanting to work with and around animals was important for this research project because it emphasized their priority for becoming a veterinary professional. I was interested in how they managed this priority of care for the animals with other possibly conflicting responsibilities that were present in research and may not have been present in other practice areas such as emergency medicine and general practice.

Overall the four veterinary technicians who were interviewed did not experience situations that were consistent with moral distress. Each of the technicians indicated they trusted the IACUC process and that if the protocol was approved then it was okay to use animals as indicated, cause a known harm, and were there to help mitigate the pain and suffering as much as possible. The moral responsibility and ethical judgements about causing harm were not their responsibility to make. They are following the protocol and that is their job. What the veterinary techs have been asked to do and the specifics (even if harming an animal) are justified by the IACUC approval of the protocol. In their narratives, if the research was not according to ethical standards of research the IACUC would not approve the research. In response to the question “what is the best part about working in research?” they all mention working with animals and helping society. Not

the specifics of what they might be doing per se, but the bigger picture that being on the side of science means you are helping society.

Veterinary technicians know the work is emotionally difficult and despite this difficulty, they have balanced these concerns with the knowledge that animals are harmed and die, and they might indeed cause this harm/death as an expectation of their employment, in order to help people or to advance a treatment. They work in research because they care about animals and because science/research helps society. The “potential” for research results to be important to society is what they focus on when asked to recall the emotionally difficult work. The technicians self-sacrifice their “love” of animals, in that they physically will cause harm to the animals, according to an approved IACUC protocol. They care about and form attachments to the animals in order to gain their trust and help them through the harm that is caused to them in research.

At times they expressed deference to researchers because the researchers were doing the noble work of science and advancing medical knowledge. The technicians did express difficulty with their responsibilities at times or felt they may have made an error in judgement which caused harm to the animal, but the balance between their responsibilities and their actions is maintained and did not lead to the experience of moral distress. They expressed limitations in their knowledge, limitations in their ability to manipulate physiology, a clear line of responsibility, and at times a lack of understanding the science as reasons why a certain procedure may have initially caused them concern. When there were difficult studies, difficult meaning studies that caused or increased harm to the animals or caused more harm than what they expected or anticipated, the technicians expressed this concern to someone with more responsibility and turned to their community (other professionals who work in research) for support and to help navigate the emotional work they encountered.

A process the veterinary technicians employed as they worked through difficult situations involved three steps: 1) reflection on the situation, which caused them to question their role; 2) reassessment of their reasons for concern; and 3) recalibration of their views to align with the decision they have made.

TRUST (Research is helping society)

“Of course the animals, but also it’s being involved in something that will ultimately help animal and human health. It’s exciting to be a part of that.” - Margaret

“Because besides taking care of the animals and working in research, what comes from that {the research} is what really gets to me—being able to help people in the long run is really what I hope is what I’m doing—helping. I have a lot of family who I hope, at some point, the research that I’m doing helps them. “ - Becky

“Helping society, helping science; we gain. Even if an animal didn't make it for health reasons, or complications, or it had to be termed before the study, we at least got some data out of it, or learned something from it, so it wasn't an empty death; whereas if I look back in private practice, I remember there was a client who got a black dog, and she wanted to euthanize it -- it was perfectly healthy -- because she got white furniture, and the dog didn't fit her decor any more. Well, that's an empty death. What do we learn or gain from that? Or maybe an animal that could be restored to health, but the owners couldn't afford it. So then it's a money death. That's sad, too, that we don't really gain anything from that. Or even if it is an osteosarcoma, which to me used to be a death sentence. 'Why are you even trying to turn this around?' But if we don't try, how do we ever grow? Some cancers, now you can look at them as a chronic disease. But if we didn't stick to it, and try ... and you are going to have your failures, but at least you're gaining knowledge from it. So, yes, there is a betterment to society.” - Chris

“The science and the animals together. I love that it is all these different people doing completely different things. Being able to be at the center of that is really cool, and knowing all of them, and being able to put stuff together. That’s my hope for the future that I continue to learn..... I love that it does help. I love that there are studies going on where they take actual tissue from tumors from people at the hospital on campus and work it out in a mouse how to treat their cancer specifically. I love that it never goes away; we don't just learn something and burn it. You learn and you write it down and share it.” - Charlie

TRUST (in the IACUC Process)

“I will be proud of what I do. I've said I can't control the actions of other people, but I can control my own. And because I came from a

clinical background, even with the research animals, they're still a patient, not a subject. That distinction is very clear in my mind: this is a patient that I care for. In research, I walk a line between meeting the study objectives and taking care of the animal. I have to do both, and sometimes there are going to be concessions a little bit on either side, like, 'No, you can't do that because it's not approved in your protocol.' I have the power to say that. Or, 'Yeah, we're going to make this animal horribly sick because it's approved in this protocol.' And I have to allow that to happen. I have to allow the disease to develop. But again, it's the controlled model, with that, and then going back to: we've proven this is science, and it has merit, and there's no other way to do it. Having that allows me to be proud of what I do." - Chris

"But for the most part, I do trust that this has been vetted and tested, and it's the only way you can do it." - Chris

"So it's not necessarily that you run into conflict where, oh, here's a situation where I get a choice, like whether I break the rules or not, because that's not a thing." - Charlie

TRUST (in researchers)

"When I first started working there, there was a cat study that I really didn't know -- and it's hard, because I'm very humbled to be in that atmosphere and working with such fine people. They know so much more than I do, especially about their own projects, and I've been around the block enough to know that I've made a fool of myself and stuck my foot in my mouth when I'm just like, 'Oh, my God, that's not right. Whatever.' And you just later learn that it's like, 'No, you don't understand. This is really important.'" - Charlie

"Yesterday I was talking to one of our neurologists, who was explaining how the studies he does ultimately do translate to his work with patients. He's an MD, PhD and how he's trying to find the right combination of drugs to help minimize their seizures. He works with epileptic patients and Alzheimer's, but he was referring to the epileptic patients and how he tried different combinations and how ultimately he hopes that he can find the right combination to minimize their seizures. That's so important, so I understand why we're doing it, but it's still hard." - Margaret

"I can remember one group I worked with that was an orthopedic group. They worked with goats and they were arguing that they didn't have to [provide] analgesia to them because it then caused the goats...because they were creating defects in their hind limbs. They argued that the goats would put weight on their hind limbs if they gave

them analgesia for [the] surgery. I was a bit naive at the time and I didn't have enough confidence to say that they needed stronger justification for that. Of course, I'm not the only person involved in that decision, so the [IACUC] committee was. It [the IACUC] ultimately allowed them to withhold it [analgesia].” - Margaret

BALANCE (Responsibility and ability to act)

“Definitely the moral dilemma that we face everyday is having to weigh the benefits of working with animals against the cost of the potential pain and distress that they experience. Every day I struggle with that, but ultimately I know that it's [necessary] especially when I talk to the PIs. Right now I'm getting around to meeting a lot of the PIs and learning about what they do, just to, hopefully, help me understand why they're doing the work with the animals, and of course to facilitate the [IACUC] review process.” -Margaret

“..... there are some that you bond with a little bit more than others. I've had pigs, and I didn't really care for that pig. That doesn't mean I treat it differently. It still gets the same amount of care. And I know that they're all going to die, and I know how they're going to die, and I'm going to be part of that. But at least I'm making their life as good as I can up to that point. So that helps [with the difficult emotional parts].” -Chris

“definitely the fact that you're one-on-one with the animals that are supposed to be sick, supposed to be diabetic or have cancer or whatever, and you are doing the best you can to make the animal comfortable while making the science happen; definitely the balance of the welfare and the science. The science and the data is the hardest part.” -Charlie

“So you don't always get a choice between: oh, here's a dilemma that I have where I can break the rules or not -- or: somebody broke the rules and I really don't want to do the right thing. That's not a thing. It's more along the lines of: I'm doing exactly what I need to do, and there's disaster right in front of me. So that's what I would say. It's the surprises where you're doing everything that you should be doing, and things still happen.” - Charlie

“There's a lot of room for improvement. Lab animal medicine is just so complicated; you have so many moving parts. You have the PI, you have the veterinary staff, you have the IACUC office, you have the committee. You have all of these moving parts and it's just so... Another thing I struggle with and this is challenging, to have to align everybody and try to come to one solution.” - Margaret

“ It's every appointment. It's every time. Just for example, when I'm injecting something experimental that's supposed to do something, highlight a particle or do something in the IVIS (in vivo imaging system) or whatever, there's always

the chance that something can go wrong, and I've definitely killed my share of mice just doing my job. “ -Charlie

“If I feel that the way that I'm going to do it [a treatment] is not going to harm that animal or harm the study objectives, then I have been known to have full out arguments about it. I stick to my guns when it's necessary when I feel that there's a reasoning behind it and yes, you want them to be sedated for a longer period of time for maybe a thoracotomy. Maybe they are super-painful and we want them to keep that chest tube in longer; something along those lines, yes, I get it that it needs to be managed differently, but if it's not, then I really do what I have to do to make sure the animal wakes up appropriately.” – Becky

ETHICAL CLIMATE (Supportive community):

“That's why I feel really strongly about my position in particular, is that I've never felt like.....if you ask a question that seems like it would be really trying or surprising to someone of like, 'Oh, crap, is that going on?' or, 'We're going to have to report this, we're going to have to do X, Y, Z,' and being a part of that culture where I'm not ever afraid to ask why or to bring things up like that is very important to me.” - Charlie

“Well, because you have to question. The researchers are being questioned, so if you're not questioning things, if you're just rolling with the punches, you're not getting anything done.” - Becky

“I think it's who I choose. I could have friends that aren't [people who work with animals]. I mean, I connect with people; I work with people all day that have nothing to do with animals. But I don't, because they can't understand me. They can't understand what I'm talking about. They haven't walked in my shoes. We've all seen the hard deaths, we've all seen the hard euthanasias, we've all been mad at owners, crazy people. [Laughs] That affects us. It's probably true in human medicine, too; I'm sure every RN doesn't fall in love with every patient. But there might be those that they really just click with and bond with.” - Chris

“I remember that, and when they [pigs] finally went [were euthanized], we went out to the bar and had drinks and we toasted them. It was really cool, because the PI found out about it, and he called the bar and bought us a round. And the bar that we went to, they made a drink for us. We were like, 'Yeah there's this one pig, you should make a drink about this pig,' and she made us one. It was really cool. You know, you work together to get through this, the hard times and in the good times. That was a big thing with the other vet techs. You've got to lean on each other. I've never met so many people with such good senses of humor. And you know, it's dark, of course, it's dark humor, but whatever gets you through.” - Charlie

VETERINARIANS

Of the 8 veterinarians who participated in interviews, two were women and six were men. The women were 33 and 35 years of age, were employed in academic institutes, members of the IACUC, had some training in ethics, and had recently started new positions. One woman had completed her residency in LAM and was expected to be ACLAM board-eligible within 6 months of the interview. The range of time in LAM was 3-7 years.

The men's age ranged from 47-75 years old, with an average age of 59.5 years. All completed residency in laboratory animal medicine, 5 were diplomats of the American College of Laboratory Animal Medicine (DACLAM), and one was board eligible. Of the 6 male participants, only 2 indicated they had some additional education/training in ethics. Four of the 6 men had MS degrees in addition to a degree in veterinary medicine. The average time spent in LAM was 28.5 years with a range of 12-56 years. The time spent in LAM was self-reported. The 56 years reported as time spent in LAM may have been: and error in self reporting time spent in LAM, possibility of individual obtaining veterinary degree at young age, or form not filled out accurately.

Seven of the 8 veterinarians who participated in this study did residencies in laboratory animal medicine and were members of the Institutional Animal Care and Use Committee (the vet who was not an IACUC member was a diplomate of ACLAM).

All eight veterinarians indicated that animal welfare was their primary responsibility within the context of how the animals were used in research. Using animals to advance science was not in and of itself an issue for them, other than acknowledging that at the most basic level of life, the animal's welfare was not a priority compared to the data they might provide. Making improvements to the medical care the animals received, to housing and enrichment, mitigating stress, distress and harm while not negatively impacting research objectives, was in the narratives of all eight veterinarians. They viewed themselves as scientists and colleagues and after animal welfare, they had the interest of the institution as their next highest priority. They elevated concerns when they believed the institution was vulnerable to external scrutiny in the form of regulatory non-

compliance and/or animal welfare. Not everyone expressed a willingness to “draw a line” in the sand when it came to concerns. Some veterinarians used other ways to document the needs of the animals to ensure the institution had been informed of these needs when the institution made a decision not to act to improve animal welfare. Some ways they documented these concerns were in routine inspection reports or IACUC meeting minutes.

VETERINARIANS: MORAL DISTRESS (Negative Valence):

TRUST (Lack of)

“Researchers know their field. What are you going to say, this is worthless, even though you may think it is? There are studies that I do believe are absolutely worthless and have been shown to be, because just like medical device development is a business, research is a business also and successful investigators know how to write grants. They know what their colleagues are looking for; they know where the field is going. People with genuinely novel ideas don't really have the opportunity to get funding. The committees are not vigorous enough and they don't have enough time and they would be viewed as disloyal to the institution if members of the committee were to question the justification for the study too vigorously.” - Bob

“What happens with IACUCs is, first of all, you don't have people on IACUCs that are competent. They really don't know what they're reading as far as the science or the pain and distress on the animals. What they've learned to do is, they edit a protocol and they look for spelling errors and they look for numbers and do they match, and they look for dosages. It's kind of a checkbox thing where they go through it. In hundreds or thousands of IACUC gigs, I don't know that we've ever sat down and had a big discussion about the pain and distress that was going on in the animals.” - Dr. G

“She [the researcher] wasn't of any kind of temperament where you could actually talk to her. It was a situation where she'd storm into your office and say that the tail flick response should have been 1 or 2 seconds and it had gone to 6 seconds and it was something that we [the veterinary/husbandry staff] did. Well, we didn't do anything different. It was just a phase of the moon or her experimental design or whatever, but she threw that data out and would only include the data that she needed to get the next grant.” - Dr. G

ETHICAL CLIMATE (Difficult culture to navigate) and TRUST

“That puts the veterinarian in a very awkward position, because if you make the veterinarian the policeman as far as reporting everything to IACUC, then he loses any trust with the research staff and the investigators to actually be able to help them and help the animals. But that's more common than it is not.” - Dr. G

“Investigators are under such heavy pressure to publish so that they can get promoted or get grants that they're willing to overlook things like pain and distress in animals. It's just not part of their paradigm that they think about. If there's another way to do it, they're reluctant to do it, because they're comfortable with what they've done in the past, even though it may not be the best way to do it.” - Dr. G

“The bottom of the decision-making chain for the administration is going to be the welfare of the animals. Always. The top thing is going to be: how does this impact funding? The next thing is: how does this impact our star researcher? Is he going to be unhappy? Then you go down a couple of other levels. But the bottom thing, nobody, nobody considers what's in the best interests of the animals. Nobody. Some cases, you have some veterinarians that think that's their responsibility; but the newer veterinarians coming on board think their responsibility is to protect the institution, not the welfare of the animals.” - Dr. G

“The problem with lab animal medicine right now is, what they do is, they pay you so much, and the reason they're paying you so much compared to what other veterinarians make is they expect you to lie for them. They expect you to cover up for them.” - Dr. G

ETHICAL CLIMATE

“These decisions are not made so much based on ethics; they're made based on power, raw power. That's the way it is and that's what is so limiting for people who would like to make changes; it can be extremely difficult to do that.” - Bob

“They had no idea. Maybe I'll use the term culture frequently here, but there was no culture of caring for the animals. They didn't know what they were doing. Since then they're long, long out of business, not necessarily because of animal issues, but other things. And the same in the veterinary practice; there were pretty ugly cultural issues that were driven by one individual, amazingly enough.” - Bob

“Individually, right, to strategize, to convince them that this was all a bad idea. The IACUC chair accused me of being a liar right in front of the hospital director, at which point the only courageous thing that my

boss ever did was after that she fired the IACUC chair.....So it becomes a matter of bullying and intimidation and it evolves into shunning also.” - Bob

“That’s another dimension to the whole thing [minority opinions]. Pretty much nobody talks to you. You don’t go to any meetings anymore; nobody comes to see you. You sit there. And I thought, OK, I did minority opinions on their protocols. That was my response. OK, I’ll do a minority opinion. And then on the semiannual, I also put in a minority opinion there. So that goes to the Office of Laboratory Animal Welfare (OLAW) and OLAW writes back, not to me directly but to the institution. ‘We want to know about your progress in improving the housing conditions for the animals.’ That was the only pressure that they [the institution] got from anybody.” - Bob

“Ultimately, this is all about the IACUC. If the IACUC doesn’t say it’s not OK, it’s OK. I could write the most carefully reasoned referenced several pages and it means absolutely nothing because all they have to do is enlist a couple of members of the IACUC, convince the IACUC that the veterinarian is interfering with our opportunity to be saving lives, curing {disease}. Therefore, you’ve got to ignore what this veterinarian is saying, and it speaks for itself. - Bob

“The approach is, well, we just need to get them off our backs, because what we know is that what we’re doing is great and noble and we’re saving lives, so don’t bother me. It’s all about saving lives.” - Bob

ETHICAL CLIMATE/ BALANCE:

“There are so many times I felt that I could not in good conscience continue to work there, but I couldn't in good conscience leave. And that was really challenging.” – Marta

“I was fired because I wasn't agreeing with what they were doing.” - Dr. G

ETHICAL CLIMATE/TRUST:

“There were times when I felt like I was the only person that saw what was happening..... And I think there is [now], especially after I was there for three years, a big movement in the residents to really start critically evaluating things like that more, and evaluate their faculty input. Not that the faculty were never correct; I don't mean that. But just because they're faculty doesn't mean they walk on water. This is a field that I'd like to think is finally maturing out of this old boys' club phase, and I think a lot of the faculty members we have there are in that

ugly transition, where they were trained by the old boys' club, and we're coming in like, we're Millennials and we want to shake shit up. So yeah, I felt like I was sometimes the only person that was in there trying to say, 'No. Look at what we're doing. It's bad. Not just not good enough, it's bad.' “ - Marta

“Where I come from, there was a lot of 'keep the customer happy' at the expense of the science and/or the welfare, which was really unfortunate.” - Marta

BALANCE:

“I would say the most rewarding thing that I was ever involved in was the improvement of housing for the monkeys, absolutely.....they [the public] just really have concerns about housing primates and using primates, so I think anything that we can do to improve their lives is well worth, it's worth somebody's entire career to do nothing else, but figure out ways to do that better. It's not the kind of thing that gets a lot of recognition.” - Bob

“Because of what I saw. It was horrendous. There were dogs on a 90-day toxicity study that couldn't stand. They were laying in the gutter in the pens vomiting, unable to get up. What can be done? ‘That's the way we did these studies. That's the maximum tolerated dose.’ Well, I could say it's not tolerated. But then I think an important theme here is that you adapt and you become desensitized to what you see, so what in the beginning is appalling becomes just sort of day-to-day business.” - Bob

“Like I say, what we should be, as far as lab animal veterinarians, we should be the advocates for animal welfare. And we're not. We're advocates to protect the institution. And that's not right.” - Bob

“The investigator's important because they are the owner. They value that animal, and they have to be able to take charge of whatever plan is decided upon. It has to be reasonable and doable for them. They have to believe in it. It doesn't do me any good to not support the research, because then I'm doing a disservice to everybody involved. But I do think that, for me, the welfare is the top tier. The other two [research and investigator] fall closely in line, but the welfare is number one. - Marta

TRUST, BALANCE, AND ETHICAL CLIMATE

“I think for me logistics-side, it's trying to get everybody that's involved on the same page; because I really think, at the core, everybody wants the best thing for the animal. Their motivations might be drastically

different, but that animal is literally embodying data that's immensely valuable to somebody. It's also something cute and fuzzy that somebody cares about. It's also the thing that somebody takes care of to get their paycheck that they really need. Everybody cares. But they're from such disparate backgrounds and have those really different teams that I think it's hard to get everybody to feel like one team and then also to operate like a team. I think communication is challenging in any kind of multidisciplinary -- but I feel like, here, it really suffers.” - Marta

“The supportive care we were able to offer for any large animals was shit. I felt like we didn't have the right to be doing large animal research. Finally, a senior resident came out with me at one point to help and also give her assessment, and I found out later that the faculty member then asked that senior resident, when I wasn't around, 'So how bad is it really?' you know, like, [she] makes it sound like it's really bad.' And I was like, it's fucking bad. Paralyzed. It's a sheep! It can't stand, it can't walk, and it can't do anything. It's in a sling! Every few hours we would go out and try to adjust it and make sure it didn't get pressure [sores] -- but overnight? Nobody was coming in overnight to take care of it. Nobody was making sure that the back of that sling didn't get wet, maybe give it dermatitis, even if was just for that 8 hours overnight.” - Marta

What initially struck me in listening to their interviews was how palpable their anger and frustration was as they recalled the situations. They openly used profanity and had a tone in their voice that mirrored the frustration and sadness they were describing. They truly believed they were following their professional and ethical responsibility. They knew the only solution at some point was to leave that position. They experienced a tipping point, and once that happened, they drew a line in the sand and eventually left.

VETERINARIANS: NO MORAL DISTRESS (Positive valence)

There were five veterinarians who described difficult situations comparable to all the veterinarians but did not have the experience of moral distress. There were no noticeable differences in what they described as their professional, moral and legal responsibilities compared to the veterinarians with moral distress experiences. What appeared to be different was the trust they described, the ability to balance their responsibilities, and the ethical climate of the institution where they worked, and their ability to have a productive discussion with others around issues concerning animal welfare. Three of the five

veterinarians had high levels of trust for the people they worked for and with. They were consistently able to balance their sense of responsibility and accountability with action to make positive contributions to animal welfare and the science. Perhaps, maybe most importantly, the community in which they worked was supportive, acknowledged and tolerated diverse opinions and discussions without negative consequences, which left these three veterinarians with intact moral integrity and agency. There were two veterinarians who did not describe trust with as much optimism as the other three veterinarians. The trust they described was guarded. One veterinarian described his technique for “bluffing” to apply pressure to the administration in order to get them to make animal welfare improvements he felt were necessary. This indicated to me he did not trust the administration would respect his professional judgement and instead used regulatory “muscle” to get what was needed. The other veterinarian described a situation in which she was concerned that her lack of board specialty might prevent her from fully expressing concerns in IACUC meetings. These two veterinarians did not describe the experience of moral distress, but they were also not as optimistic about the laboratory animal community as a whole.

ETHICAL CLIMATE (Supportive Community)

“I say now here’s how we can do it. I’ve rarely found a legitimate proposal, which most of them are—they may be lousily written and conceived—that good science that can’t be done within the bounds of ethics, and morals, and law if you stop to think about it. In fact, one of the criticisms, of course, that the animal rights people make at IACUC is that they never write anything down. I say that’s not true. I said I can’t speak for other institutions, but I’d say probably that most of my institutions I’ve worked in since we’ve had the laws had roughly twenty to twenty-five percent go back for revision and some of them we never see again because the critics essentially realize this [the protocol and idea they submitted to the IACUC] was crap and don’t send it back.” – LeRoy

“When I think about some of my earlier experiences in the field and how we housed both dogs and non-human primates, and comparing that to how we house them now, at least in my facility, there are really significant changes that I am very happy to see. Being reminded of that is important because many of those changes would not have occurred unless there was some friction, some external force saying ‘can’t you do a better job at this?’ And that there is inherent value in somebody continually challenging, are you doing all that you could or all that you reasonably could. Not maybe, but there is value in having somebody who just

cares about how the animals are doing, regardless of the work. Because in a good way, it forces a reexamination of, this is the way we have always done something, but maybe there is a better way to do it.” – John

“My most difficult experience, I guess, was in a virus study. It was my first time with that disease and I didn’t have a lot of experience with it. We were relying on a couple of senior researchers, who had done a lot of work in labs in the project here at our place. It’s a super difficult disease, if you’ve never seen this virus in action. I’m fairly certain that the first couple of iterations of that study we let things go entirely too long, but it was one of those difficult situations where we’re asked to use a question that we’re trying to find out if the intervention we’re using is going to rescue the patient in a near end state disease. It is a super difficult study, with really poor outcomes for the animals. I remember telling the technicians that that study was the one that convinced me that I was going to spend some time in monkey hell for what we did there.” – Roger

“You make everybody feel very respected and legitimate, and then whatever path forward seems to be the most reasonable, I think you try to steer them down that path. Then again, while respecting their opinions and saying there certainly are other ways to look at this and that kind of thing.” – Mark W

“I’m kind of infamous for going the other direction when it’s necessary. I’m privately described as a contrarian in most circumstances for just about anything. There have been more than a few instances over my career where I’ve been the person who said, you know what, I don’t think so, or, I’m not comfortable with it. I’ll give the reasons and explain to everyone, and we’ll vote, but I’ll let you know I’m not very happy with this one.” - Roger

BALANCE

“In general, most of our protocols are written so the endpoint criteria are pretty clear. In cases where it is not clear, what is spelled out fairly explicitly is that the veterinarian has the final call. That said, there are a handful of things that have happened and most of these are in the safety assessment related side of things, where there is a good discussion about ‘this animal does not look good.’ The question is, is this animal going to stay this way, is this animal going to get better or is this animal going to get worse? When I have been involved in those conversations, and this holds true regardless of the species, there are a couple of main points that I like to make. One is we want to make a good decision to minimize the likelihood of the animal dying when we are not present. Said a more direct way, what we try to avoid is coming in the following morning and find that an animal we were concerned about has died. When I talk to PIs, one of the concepts that I use is there are two reasons for that. One is from doing the right thing by the animal; the other is for them to be able to best understand what is

actually going on. Our ability to do that when we find an animal already dead is rather limited.” – John

*“I say I wish I had been better prepared. I’m not sure anybody can prepare themselves for that kind of thing, other than maybe spending some more time interviewing the senior researchers who had already been in the environment using similar pathogens and similar animals and see what their experience was. I realized after it was all over that had a couple of those people on our staff that I could have gone to, but I didn’t catch it early on and realized afterwards in the discussion in the room, where these two scientists happen to be there, and were like, oh yeah, I know what you are talking about. It hit me there that I did not prepare well enough as I could have. Not that that preparation would have made it any easier on the animals, but hopefully would have made me more competent, and feeling like I was ready to see that and know when we needed to stop things.”
- Roger*

“It’s just a daily thing that you deal with and sort of the ethics. Veterinarians are so much caught in the middle between the investigators, the public, colleagues, regulatory agencies. And of course, I don’t want to say caught in the middle of the animals, but the animals are kind of at the center of it along with the veterinarians. It’s something you just finesse that you learn over the years. I’ve seen a lot of people go up in flames by being too rigid and dogmatic about things.” – Mark W

“This is something that happens pretty often. I’ve had people push back on a euthanasia deadline. I don’t think I’ve had a lot of people say to me, ‘I don’t want to euthanize this animal at all’; I’ve just had a lot of people say, ‘Please can I push this out a few more days. I could collect valuable data.’ I really try to take the needs of the research into account, so I’ve had people say, ‘I need to keep this animal for another month, and if I keep it for two more weeks, I’ll get nothing useful out of it,’ and then I’m like, ‘I’m not going to extend the deadline at all, because I’m not going to extend it out to a month, and it doesn’t help you if I only extend it out to a day.’” – Tracey

TRUST (Optimism of goodwill and competence)

“I felt very fortunate; I worked with a lot of competent people, who also, once I identified these things, were super interested in the potential for having an earlier endpoint or learning something else from that realization. A lot of them simply hadn’t been there to observe that change early on. Sometimes they would be called in to make the decision, do we euthanize or not? But they weren’t there to see the early signs. It was one of those things that when I recognized it, it was kind of the first time that it had actually been pointed out to them, in any serious way, anyway. I never had any real pushback on that.” - Roger

“I went up to the investigator and said I hate to tell you this, but here’s what I’ve got, and I showed him the photographs from the animal, of the eyelid, and I said here’s the guy I talked to who’s the expert on baboon TB testing. He said any reaction is a positive, and so I said he recommends euthanasia. I agonized over this, and the investigator agreed to do it. I opened that animal up, and I’ve never been so happy to see so many pillory TB lesions in my life. He was loaded. I was delighted—that’s the wrong word to use—but delighted I had made the right diagnosis, and the investigator was satisfied that we had done the right thing.” – Leroy

“For my experience, specifically with the vet techs, I tend to listen very carefully to what they are telling me, and probably more so than the PIs, it is most important to me that they are not always in complete agreement but they are comfortable with the decisions that I make.” - John

ETHICAL CLIMATE, BALANCE, and TRUST

“I want them to know that I have the best interests of the institution always in mind, right behind the best interests of the animal. My number two thing is always to take care of the reputation of the institution, and I assure them up front that when I have to come to their office that I feel the reputation of the institution is at risk.” – Roger

CHAPTER 5: DISCUSSION

To my knowledge there are no studies that look at moral distress in the veterinarians and veterinary technicians who work in research and this is the first study to attempt to do so. What was learned is that moral distress does exist in laboratory animal medicine and the themes that emerged during analysis were consistent with the other moral distress research in the literature. The sources of the moral distress were not about using animals in research, because there was agreement that “science is noble” and that “saving lives” was important work. The moral distress occurred within the culture of science and research and not because harming animals is sometimes part of that process. The moral distress was not associated with the practice of unnecessary or “bad” euthanasia, as has been discussed in other areas of veterinary medicine. [86-87] In the current literature, there are three elements that contribute to moral distress in healthcare professions, and this was found to be true in laboratory animal medicine as well. These elements are clinical situations, factors internal to the provider, and external factors in the situation or environment. [88] The themes that were identified in the passages: trust, balance (equilibrium), and ethical climate have also been described in other moral distress research. [89] In the veterinarians, when trust was no longer felt to be present, this tipped the experiences of these veterinarians into moral distress. Once moral distress was experienced, leaving the work situation was the outcome, as the veterinarians implied it was impossible to repair the professional relationships.

What was unexpected, given the similar perceived hierarchical arrangement between veterinary technicians and veterinarians with that of nurses and physicians, was that the four veterinary technicians interviewed did not describe experiences consistent with the definition of moral distress. I believe this was because they held themselves responsible to the IACUC approved protocol first, and then to the animal’s welfare. The veterinary technicians had somewhere to direct their concerns (the IACUC or a veterinarian) that shifted any moral responsibility they felt towards the animals to someone with more authority and responsibility, thereby maintaining their moral agency and integrity. The process the veterinary technicians appeared to employ to help navigate the emotional work they encountered I refer to as reflect, reassess (moral reasoning), and recalibrate,

which is also present in some of the veterinary literature that evaluates moral reasoning and intuitive action choices. [90] All four veterinary technicians went through this process when faced with causing harm or witnessing harm in an animal that was disturbing to them. Recalibrating was ultimately a way for the vet techs to continue with the behaviors and beliefs that they had and which allowed them to keep doing what they needed to do. This was an essential part of their narratives and I believe what allowed them to continue to support the research in which they participated in order to maintain their moral identities and integrities. The veterinarians did not appear to use this process, nor did they describe this process in their interviews.

All eight veterinarians believed that animal welfare was their number one priority within the context of animal research. They were all supportive of using animals in research and knew that on some level using animals in research was fundamentally not aligned philosophically with animal welfare. How they negotiated this priority and responsibility was not that different from one participant to the other. They expressed the need to be seen as a scientist and colleague and not the animal welfare police. They expressed similar ideals of helping scientists get the best data possible. Of the eight veterinarians that were interviewed, three gave narratives that were consistent with moral distress. Five veterinarians (one woman and four men) gave narratives that did not reflect the experience of moral distress. Of the three veterinarians that did have moral distress (one woman, two men), they all expressed a lack of trust in peers, colleagues, and administration/management, were not able to maintain a balance between professional responsibilities and their authority to act on those responsibilities and gave examples of situations that gave them the impression their experience, skills, ideas, or concerns were not valued. Over time, communication efforts deteriorated and became unrepairable, and all eventually left their positions or were asked to leave.

LIMITATIONS and BIAS

The limitations of this study are the same as those that are typically encountered with qualitative research methods such as ambiguities of language, and findings that cannot be extended to wider populations with the same degree of certainty. Findings in qualitative research are not tested to discover whether they are statistically significant or due to

chance. In addition, interviews are one sided and only take into account the understanding and the interpretations of the person being interviewed despite situations that involve multiple players. Selection bias of the participants and the bias of the student as a laboratory animal veterinarian must also be considered when reviewing the results. There is a reason they choose to participate in this study that was not addressed and in hindsight that was not one of the questions that was asked. The sensitivity and regulatory requirements that are involved in laboratory animal medicine are such that it would have been difficult for someone who did not have the same experience of the student to conduct the interviews.

NEXT STEPS

Currently, there is an increase in the amount of research being published on the veterinary profession regarding compassion fatigue, burnout, depression, and suicide. [91] There appears to be an assumption in this literature, that moral distress is similar to these symptoms or co-exist and may also lead to problems with mental health. This has not been reported in other moral distress literature, however there is a manuscript which discusses ethically significant moral distress. [92] In this 2015 reference, Thomas and McCullough argue there is conceptual confusion around moral distress. They outline the philosophical taxonomy of ethically significant moral distress categories as: 1.) challenges to 2.) threats to 3) violations of professional integrity 4) challenges to 5) threats to 6) violations of individual integrity. They conclude, among other important findings, that “Ethically significant moral distress is the judgement that has important psychological sequela ranging from anxiety through depression to burnout.” [93] To my knowledge, there are a handful of papers in the veterinary literature that use the term moral distress and they appear to indicate it is similar to an ethical dilemma, which is not the definition of moral distress. Most of these articles have been recently published and are in connection with measuring moral distress in Australian veterinary students and finding ways to mitigate its effect through education before they graduate from veterinary colleges. [94-96]

Overall, the professional values and responsibilities of the veterinarians who participated in this research were similar to one another. They were committed and engaged to the

profession and the research community. This commitment was primarily to the welfare of the animal within the context of using animals in research. This meant they were prepared to negotiate on behalf of the animal to mitigate any non-scientifically justified harm and felt this is what is expected of them by the public, the regulations, their peers, and their professional oath. What contributed to the veterinarians who did describe the experience of moral distress, was a perceived lack of support for their professional, societal, and legal obligations, by the administration and scientific peers. The veterinarians trusted and respected the scientists as experts in their fields when it had to do with the scientist's research, but in the event of the situation where moral distress was described, the scientists or other peers did not reciprocate the same collegial trust and respect. Even in environments where the veterinarians were trusted as the hired experts in animal health and welfare, they described similar ethically tense situations. However because the atmosphere was believed to be collaborative and not adversarial, trust, balance, and supportive community were the characteristics that allowed their moral agencies and moral integrities to remain intact. They were not expected to acquiesce just because a study was "well-funded", which seemed to be used as a code word for a power differential in other contentious research environments.

What this research indicates is that it is not enough for individual employees to be aligned with the culture of science and the research community, especially in professions where there are diverse ethical frameworks, public concern, and financial and publication pressure. The experience of moral distress in employees is a shared responsibility with the organization and institution. The individual and the organization are both accountable for ensuring the professional environment actively works to gain and maintain trust, allows a balance between authority and responsibility, and provides a supportive ethical climate that is self-aware, open to discussions, and has opportunities for collaborations.

It is encouraging to see that moral distress is being addressed in the veterinary profession's literature. However, it may be a disservice to the profession when moral distress is not examined more thoroughly in veterinary medicine, as it has been in other professions. Using qualitative methods and adapting moral distress instruments to

measure moral distress in veterinary professionals is necessary to explore the unique settings of the veterinary profession and to use this knowledge to mitigate, educate and prevent the negative effects. What makes moral distress different from other emotionally distressing experiences is that at its core it negatively affects the moral agency and integrity of the professionals who have the experience. [97] Other stress relieving methods have not been found to be successful in restoring moral integrity and moral agency for those with moral distress. [98] Caution is warranted to adapt the same solutions from other healthcare workers to mitigate moral distress in the veterinary profession. Despite the parallels in the scientific knowledge and interpersonal skills needed to be successful in human and animal research environments, the professional oaths, normative values, financial support and clinical settings are not necessarily equivalent and therefore solutions may not transfer.

CHAPTER 6: CONCLUSION

Moral distress has been identified and studied within healthcare professions since 1984. The definition of moral distress has evolved over time with the changing healthcare environment. Although it has been assumed that moral distress occurs within the veterinary profession, this is the first study to examine the experience of moral distress within the context of laboratory animal medicine. The findings of this study confirm the experience of moral distress in some laboratory animal medicine professionals. This has implications for future policies as attrition in the veterinary profession both within and outside the research community needs to be addressed. The conditions that were found to contribute to moral distress in this group of professionals were the negative valence of trust, an imbalance between responsibility and ability to act according to this responsibility, and what type of ethical climate was present. This is an important finding and more research will be needed so that strategies can be identified and employed to mitigate the shared detrimental effects moral distress has in veterinary professionals and the scientific community in which they are situated.

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Appendix

List of possible interview questions:

- Why did you decide to become a veterinarian/veterinary technician?
- How did you decide to go into laboratory animal medicine?
- Have you had experiences when you had to advocate for an animal in the context of your work as a lab animal veterinarian/veterinary technician?
- Tell me about a time when you felt like you could not advocate for an animal under your care.
 - What prevented you from helping?
 - What barriers did you encounter?
- Have you ever had second thoughts about working in research?
- If you have been on an IACUC?
 - What has your experience been like?
 - Have you ever voted no on a study?
 - Why or why not?
 - How many times have you expressed concerns about a protocol?
 - How did that go for you?
- Tell me about a time when you observed someone doing something that you thought was not appropriate towards an animal.
 - What was the outcome?
- What has been your experience with interacting with PIs about the care of the animals in their research?
- Describe a situation where you felt an animal was suffering, but you were not able to help the animal.
 - What did you do about it?
- What has your experience been when you wanted to do something for an animal or had to do something to an animal that you didn't want to but had to because it was in the protocol?
- What do you like best about working in research?