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Compassion Fatigue and Satisfaction in U.S. Army Laboratory Animal Medicine Personnel

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**Abstract**

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Compassion fatigue has been described in various “caring professions” across the human medical field. Recently, compassion fatigue has been identified as a concern in animal care professions, specifically veterinary medicine. Despite the perceived increased risk of compassion fatigue in veterinary personnel in animal research, no rigorous studies have been published to assess compassion fatigue in the population. The purpose of this cross-sectional study was to describe the prevalence of compassion fatigue and compassion satisfaction, using the Professional Quality of Life Scale (ProQOL), among active duty veterinary personnel in Department of Defense animal research environments. The ProQOL measures burnout and secondary traumatic stress as representative of compassion fatigue, while also measuring the inverse of compassion fatigue: compassion satisfaction. Additionally, this study set out to identify factors associated with development of compassion fatigue and satisfaction. Validated scales of measurement were used to assess the frequency of exposures and outcomes of interest, while associations were analyzed using linear regression models. The study found most survey respondents reported high levels of compassion satisfaction, and low levels of burnout and

secondary traumatic stress; however, moderate levels of burnout and secondary traumatic stress were also prevalent in the population. Factors associated with higher levels of compassion fatigue (as measured by burnout and secondary traumatic stress) and decreased compassion satisfaction included working with nonhuman primates, difficulty working with primary investigators, loneliness, and euthanasia distress. These findings can inform future research efforts to explore compassion fatigue in animal research environments, as well as initiatives for program development within Department of Defense research environments to decrease occupational stress by the prevention and mitigation of compassion fatigue.

## **Introduction**

Veterinarians and veterinary technicians enter their profession because of their love for animals and desire to care for and ‘help’ animals (Black et al., 2011; Figley & Roop, 2006; Polachek & Wallace, 2018; Rohlf & Bennett, 2005). Once in practice, veterinarians and veterinary technicians are exposed to high occupational stress and demanding work environments, which can result in the development of compassion fatigue (CF) (Black et al., 2011). Though the exact definition of CF has evolved over time and conceptual models vary by different researchers (Hill, et al., 2020), CF is defined by Figley & Roop (2006) as, “the mental weariness resulting from exertion that is associated with attending to the emotional and physical pain of others.” CF was first documented in nurses (Johnson, 1992) and has been studied among a variety of caregiving professions within the human medical field (Ghazanfar, et al., 2018; Johnson, 1992; Kolthoff & Hickman, 2017; Roney & Acri, 2018; Sarra & Feuz, 2018; Sorenson, et al., 2016). Figley & Roop (2006) describe CF as an important concern for animal care workers; however, few studies have assessed the actual prevalence or risk factors for CF in veterinary medicine.

Laboratory animal veterinarians and technicians in biomedical research facilities represent a unique cohort of animal care workers who may have increased risk of developing CF. Veterinary care providers in animal research environments interact with research animals daily, providing preventive and emergency veterinary care, husbandry, veterinary support for research procedures, and environmental enrichment. Daily interaction with animals, as well as the passion for animal health and welfare that drives individuals to enter the field of veterinary medicine, results in a bond between worker and animal, described as the “human-animal-bond” (Figley & Roop, 2006; Hanrahan, et al., 2018). Workers who develop this emotional bond with the animals,

and who must perform duties to support important biomedical research protocols that may be terminal (involving the death of the animal), or cause pain or distress to animals, may be at risk of CF. CF can decrease the worker's job satisfaction, mental health, and overall performance. Despite this possibility, no studies to date have assessed the extent of CF in laboratory animal veterinary workers.

U.S. Army laboratory animal medicine personnel represent a unique population within the laboratory animal medicine workforce. Army workplaces experience constant fluctuation of personnel due to new military assignments, which may cause inhibited, disrupted, or delayed team cohesion. Service members also experience geographical separation from their peers, friends, and families, which can result in feelings of isolation and loneliness. Enlisted animal care specialists in the military occupational specialty of 68T (animal care specialists) serve alongside veterinarians and veterinary technicians performing technical tasks in support of veterinary procedures and animal care (including animal husbandry, assisting with physical examinations, assisting with surgical procedures, etc.). Enlisted animal care specialists may be assigned to work in biomedical research without full knowledge of job requirements or expectations. These external factors may affect coping mechanisms for these service members, increasing risk for emotional stress and burnout.

CF has been described as consisting of two components: burnout (BO) and secondary traumatic stress (STS). Burnout is defined as a feeling of hopelessness at work and difficulty in carrying out one's job effectively (Stamm, 2010). Secondary traumatic stress in a health care worker has been described as a work-related, secondary exposure to extremely stressful or traumatic events that causes the worker to experience an extreme state of tension and preoccupation with suffering in the medical setting (Stamm, 2010). STS can result from either a

single event or daily events and can interfere with a person's ability to perform their job (Rohlf & Bennett, 2005; Stamm, 2010). Conversely, compassion satisfaction (CS) is the positive feelings of pleasure that result from contributing to one's work or the greater good of society (Stamm, 2010). CF has been described in healthcare providers as resulting in emotional exhaustion, depression, frustration, depersonalization, sense of loss in one's achievements, recurring nightmares or flashbacks, substance abuse or other compulsive behaviors, lack of self-care, and can adversely affect patient care (Kase, et al., 2018; Newsome et al., 2019). Newsome et al. (2019) report that CF within animal care work environments can cause a high rate of employee absenteeism or excessive workers' compensation claims; high personnel turnover; lack of team cohesion; aggressive behavior among staff; unwillingness of staff to respect rules and/or deadlines; increased negativity, increased mistakes, safety violations, or occupational health reports; increased stress experienced by research animals; and decreased quality of animal care or medical care.

Figure 1. Components of Compassion Fatigue

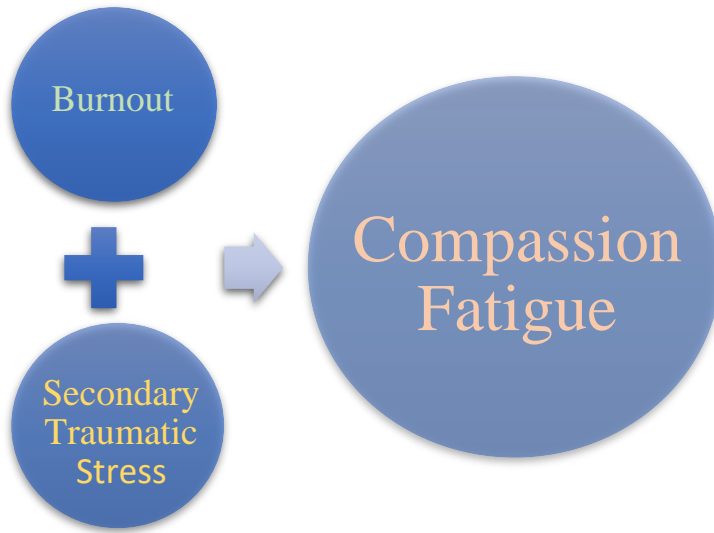
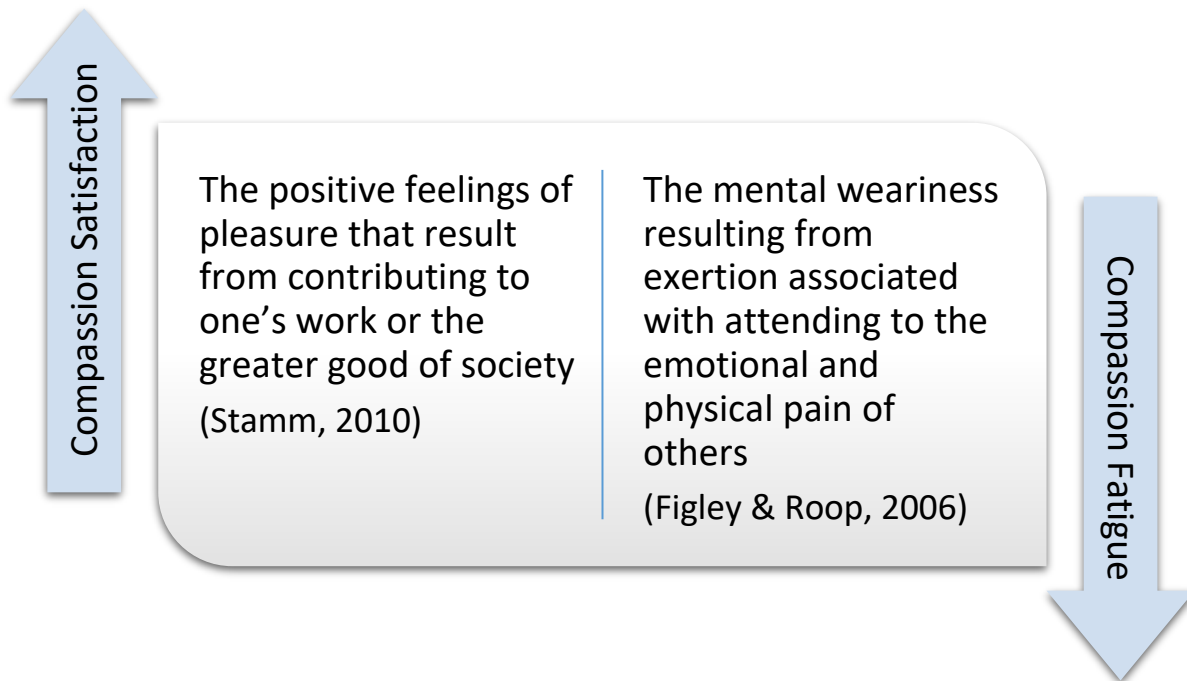


Figure 2. Comparison of Compassion Fatigue and Compassion Satisfaction



There are a variety of exposures specific to laboratory animal medicine that have been observed or proposed to impact occupational and emotional stress of animal workers. Veterinary workers in animal research environments may face moral and emotional conflict when their role

requires the euthanasia of animals as a study endpoint or procuring and caring for animals, knowing the animals may require euthanasia and tissue collection as a study endpoint (Newsome et al., 2019). Euthanasia distress is often described as an occupational stressor in veterinary medicine and can vary with different species and levels of attachment to an animal the caregiver has developed (Black et al., 2011; Rohlf & Bennett, 2005; Scotney, et al., 2015). Veterinarians in companion animal practice experience euthanasia distress when making end of life decisions with their clients and patients (Rohlf & Bennett, 2005; Scotney et al., 2015). In research environments, there are times when an approved research protocol may require an animal to experience pain or distress. Veterinarians and other professionals who serve on Institutional Animal Care and Use Committees (IACUCs) must carefully weigh the harm:benefit ratio of proposed research. Protocols involving pain and distress to animals are classified as “Category E Studies” under the United States Department of Agriculture (USDA) categories for animal research. Supporting these studies and observing animals in distress while unable to intervene may increase the risk of secondary traumatic stress in animal care staff. Personnel working in animal research environments may also experience an absence of social support and increased loneliness due to the social stigma associated with animal research, which can reduce individual coping mechanisms for stress (Davies & Lewis, 2010; Newsome et al., 2019).

Recognizing the existence of CF in laboratory animal medicine and establishing potential associations of specific exposures in the field can assist in developing effective programs to address and mitigate the components of CF and decrease occupational stress in the workplace.

We hypothesized higher levels of euthanasia distress, self-reported difficulty working with primary investigators, higher levels of loneliness, working with non-human primates, and

supporting Category E studies would be associated with lower levels of CS and higher levels of BO and STS, indicating higher overall CF.

## **Methods**

### STUDY DESIGN

This study is a cross-sectional survey study based on respondent experiences and perceptions from personnel who served in Department of Defense animal research environments within five years of the survey administration. Data were collected from a non-random, convenience sample of active duty veterinarians and animal care specialists in several locations.

### SUBJECT RECRUITMENT AND ELIGIBILITY CRITERIA

The target population for the study was active duty Veterinary Corps officers (VCOs) and animal care specialists in the military occupational specialty 68T serving in Department of Defense animal research environments. The total number of job authorizations for VCOs and animal care specialists in animal research at the time of the study were 63 and 83, respectively. Due to the nature of active duty personnel changing jobs approximately every three years, eligibility was expanded to those who served in animal research environments within five years of the survey. The source population, given the eligibility criteria, was estimated to be ~150 personnel.

The Army Public Health Center (APHC) Office of Human Protections reviewed the study protocols, determined this project to be public health practice with minimal risk to subjects, and approved the study (Project #: 16-511.M1). Data were collected using a protocol approved by the APHC Public Health Review Board. Participation in the survey was completely voluntary, and management did not participate in recruitment activities. Recruitment emails were distributed

upon activation of the online survey, and reminders were sent weekly for one month until availability of the online survey was closed. Recruitment emails were distributed through internal networks, including by the Consultant to the U.S. Army Surgeon General for Laboratory Animal Medicine, to VCOs currently serving in laboratory animal medicine assignment authorizations, the Compassion in Animal Research Environments (CARE) Working Group, as well as through the senior veterinary enlisted personnel network. Follow up invitations were sent weekly to potential participants. The announcement was also shared through social media platforms. Recruitment emails and social media announcements explained the purpose of the survey and contained a URL link opening the survey. Those who opened the survey link were directed to a webpage containing an introduction to the survey. To participate in the study, respondents were required to have computer and internet access, be able to read and understand English, and provide informed consent. Only completed surveys were included in the analysis.

## DATA COLLECTION

*Demographic Data.* Demographic data was collected for the following variables: sex, age, rank, military occupation, deployment history, time in service, and current employment environment.

*Professional Quality of Life (ProQOL) Measure, Version 5.* The ProQOL-V measure was used to measure CS, BO, and STS. The ProQOL-V consists of three subscales measuring CS (alpha scale reliability 0.88), BO (alpha scale reliability 0.75), and STS (alpha scale reliability 0.81) (Stamm, 2010). Participants are classified as having low levels in each domain if their sum score is less than or equal to 22, average levels if their sum score is between 23 and 41, and high levels if their sum score is greater than or equal to 42 (Stamm, 2010). The ProQOL-V scales can also be assessed on a continuous scale for statistical association with other variables, as recommended by the ProQOL Manual.

*UCLA Loneliness Scale, Version 3.* The UCLA Loneliness scale is a validated 20-item questionnaire with four response categories (Hughes, et al., 2004; Russell, et al., 1980). The response scale ranged from 1 (never) to 4 (often). Cronbach's alpha across all five items was 0.93. Loneliness scale score of 65 to 80 indicates a severe high degree, 50 to 64 indicates a moderately high degree, 35 to 49 indicates a moderate degree, and 20 to 34 indicates a low degree of loneliness (Perry, 1990).

*Euthanasia Distress Scale.* The survey contained five questions from the validated, eight-item questionnaire designed to measure emotional responses to euthanasia (Witte, et al., 2013). Questions related to euthanasia in non-laboratory animal environments were removed. Each statement had five-item Likert scale response levels ranging from 'strongly disagree' to 'strongly agree' (Witte, et al., 2013). Cronbach's alpha across all five items was 0.74. The range of possible scores was 5 to 25, with higher scores indicating higher euthanasia distress.

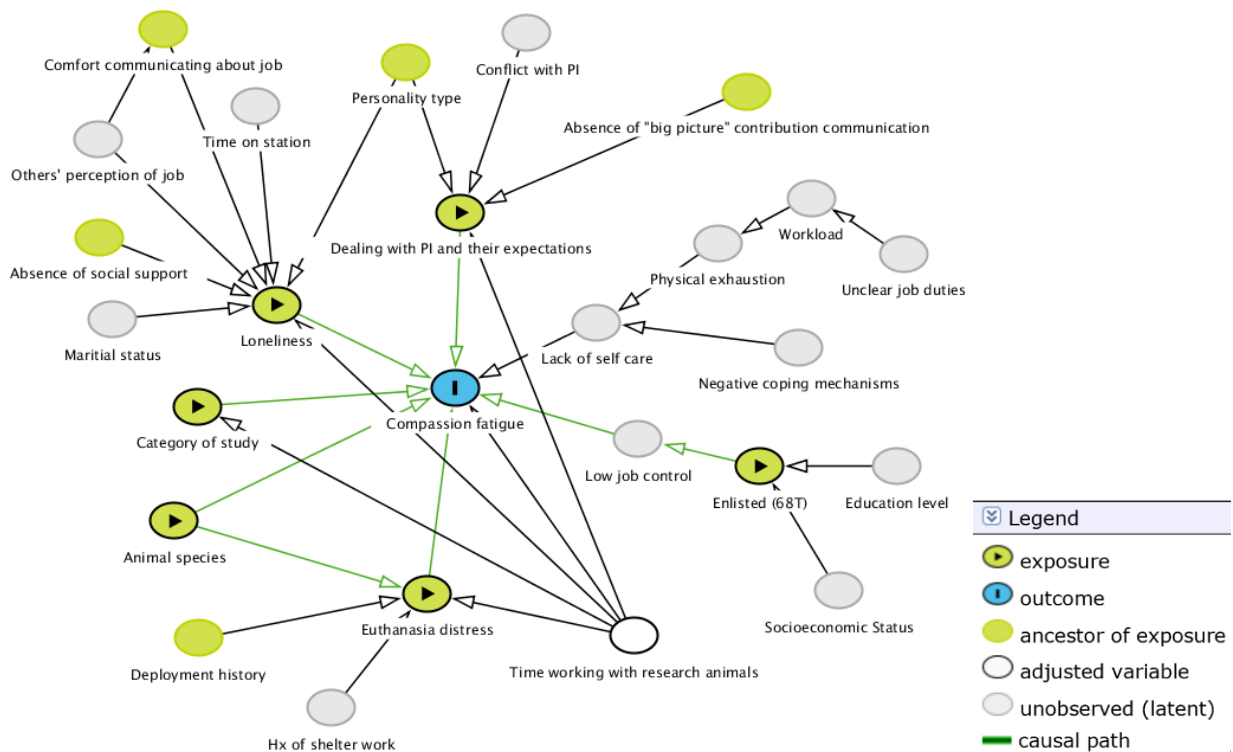
*Group Designed Survey Questions.* The survey included several "group-designed" questions developed by laboratory medicine and public health experts for this study to examine topics for which available scale measures were not felt to be appropriate. These were tailored to address questions related to occupational stressors specific to laboratory medicine, coping and stress mitigation strategies, and training needs.

External validation and pretesting of the survey was performed by administering the survey to stakeholders to solicit feedback on its usage, scope, and length. Stakeholders included epidemiologists, civilian veterinary workers in Department of Defense animal research environments, U.S. Army laboratory animal medicine leadership, and civilian veterinarians in academic environments. Feedback from pretesting was incorporated into the final survey.

## DATA ANALYSIS

To guide the data analyses, a directed acyclic graph (DAG) was created to demonstrate the conceptual relationship of exposures and risk factors that can lead to development of CF (Figure 3). The DAG demonstrates hypothesized relationships of exposures with outcomes, to include effect modifiers, precision variables, and/or mediators, and determines the minimal sufficient adjustment set necessary to assess the effect on the outcome by the exposure in the adjusted linear regression model (Textor, et al., 2016). For example, the exposure of euthanasia distress leads to the outcome of compassion fatigue, with the additional confounding variable of animal species.

Figure 3. Directed Acyclic Graph



We assigned the following variables to be exposures of interest (independent variables): USDA category of study, euthanasia distress, self-reported difficulty working with primary investigators, and working with non-human primates. USDA category of study was assessed as a binary variable (experience working with Category E studies vs. Categories B, C, and/or D); euthanasia distress was assessed as a numeric variable (scale range 5-25); loneliness was assessed as a numeric variable (scale range 20-80); difficulty working with primary investigator was assessed as a binary variable (respondent selected or did not select as a factor considered most stressful about an individual's job); and working with non-human primates was assessed as a binary variable (respondent selected or did not select experience working with non-human primates).

Outcomes of interest (dependent variables) were the three components of compassion fatigue: CS, BO, and STS. Each was assessed as a numeric variable (scale range 10-50). Internal reliability of the scales for the survey population was assessed by calculating Cronbach's alphas.

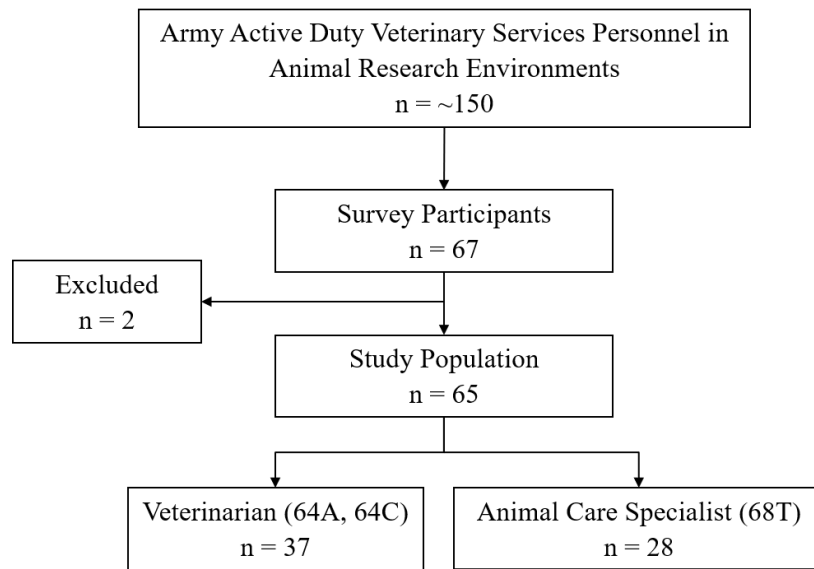
Statistical analyses were performed using R Software V3.5.1. Linear regression was performed to assess the association of each exposure of interest and each of the three outcomes of interest (CS, BO, and STS). Multivariate linear regression was then performed, adjusting for confounders (variables associated with the exposure and outcome) and precision variables (variables associated with the outcome, but not exposure). Statistical significance was determined for associations with p-values less than or equal to 0.05. Potential confounders were selected a priori based on subject-matter knowledge: sex (male or female), age (less than 30, between 30 and 39, or greater than or equal to 40), military occupational specialty (64A and 64C or 68T), and time spent working with research animals (less than three years or greater than or

equal to three years). Working with non-human primates (vs. not working with non-human primates) was noted as an additional confounder when evaluating euthanasia distress. Further analysis was performed by fitting a larger multivariate regression model for each outcome with all exposures determined to be statistically significant in the adjusted model (p-values less than or equal to 0.05), still adjusting for confounders and precision variables. Due to the exploratory nature of the analysis, adjustment for multiple comparisons was not made to avoid loss of sensitivity. The design and report for this study were conducted in accordance with STROBE standards for cross-sectional studies (Vandenbroucke, et al., 2007).

## **RESULTS**

The target population, active duty U.S. Army Veterinary Corps personnel who worked in animal research environments within five years of survey administration, was approximately 150. The survey was completed by 67 respondents, yielding an estimated 67/150 (45%) response rate. 51/67 (76%) survey respondents were currently working with animals in research environments, while 14/67 (21%) were not currently working in animal research environments but had within five years of the survey. Two participants (2/67; 3%) were excluded from the study population due to not meeting inclusion criteria of working with research animals within five years of the survey. Of the 65 survey respondents included in the study population, 37 were veterinarians and 28 were animal care specialists (Figure 4).

Figure 4. Survey respondents



Demographic characteristics of study population are reported in Table 1. The distribution of male to female study participants (female predominance) was representative of the sex distribution within the target population of active duty veterinarians and animal care specialists.

Table 1. Sociodemographic characteristics of study population

Characteristics	% (n)
Sex	
<i>Male</i>	32% (21)
<i>Female</i>	68% (44)
Age	
<30	17% (11)
30-39	46% (30)
≥40	37% (24)
Grade/Rank	
<i>E1-E4 / PV1-SPC</i>	18% (12)
<i>E5-E6 / SGT-SSG</i>	22% (14)
<i>E7-E9 / SFC-SGM</i>	3% (2)
<i>O1-O3 / ILT-CPT</i>	3% (2)
<i>O4-O7 / MAJ-BG</i>	54% (35)
Military occupational specialty	
<i>64A (Field Veterinary Service Officer)</i>	3% (2)
<i>64C (Veterinary Laboratory Animal Medicine)</i>	54% (35)
<i>68T (Animal Care Specialist)</i>	43% (28)
Time in service (years)	
<1	0% (0)
1-4	15% (10)
5-9	25% (16)
10-19	52% (34)
>20	8% (5)
Deployment history	
<i>Yes</i>	45% (29)
<i>No</i>	55% (36)
Current employment environment	
<i>Laboratory/Research</i>	63% (41)
<i>Staff Officer</i>	6% (4)
<i>Personnel management/Administrative</i>	3% (2)
<i>Long Term Health Education and Training (Residency program)</i>	15% (10)
<i>Other</i>	12% (8)

Of the study participants, half (52%) reported high CS, while 48% reported low to moderate CS. As seen in Table 2, higher proportions of veterinarians reported high CS (21/37 [57%]) than animal care specialists (13/28 [46%]). Over a third (37%) of study participants indicated moderate BO, while 63% indicated low BO. BO score distributions were similar

between veterinarians and animal care specialists. No high BO or STS was reported in the study population. Moderate STS was reported by 15% of the study population, while 85% reported low STS. Higher proportions of moderate STS were reported among animal care specialists (5/28 [18%] compared with veterinarians (5/37 [13.5%])). 14% of participants reported moderate levels of both BO and STS. These results are summarized in Table 2. Descriptive statistics for the results are displayed in Table 3. Figure 5 displays the distributions of CS, BO, and STS scores, demonstrating variability in reported STS scores to be less than both CS and BO. While the majority of respondents reported low STS and low to moderate BO, CS scores were moderate to high.

*Table 2. Burnout, Secondary Traumatic Stress, and Compassion Satisfaction scores by military occupational specialty*

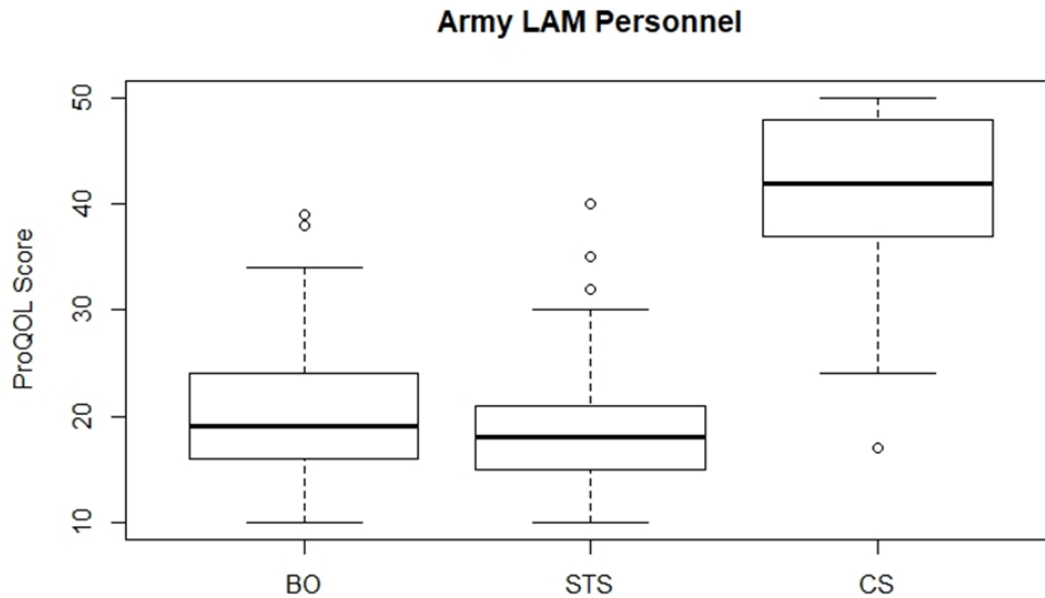
	<i>Veterinarians % (n)</i>	<i>Animal Care Specialists % (n)</i>	<i>All % (n)</i>
<b>Burnout (BO)</b>			
<i>Low</i>	62% (23)	64% (18)	63% (41)
<i>Moderate</i>	38% (14)	36% (10)	37% (24)
<i>High</i>	0	0	0
<b>Secondary Traumatic Stress (STS)</b>			
<i>Low</i>	86.5% (32)	82% (23)	85% (55)
<i>Moderate</i>	13.5% (5)	18% (5)	15% (10)
<i>High</i>	0	0	0
<b>Compassion Satisfaction (CS)</b>			
<i>Low</i>	3% (1)	0	2% (1)
<i>Moderate</i>	40% (15)	54% (15)	46% (30)
<i>High</i>	57% (21)	46% (13)	52% (34)

*Scores for each subscale could range from 10 to 50. Categories were defined and scored as required in the 2010 ProQOL Manual; scores between 5-21 were considered low, 23-41 moderate, and 42-50 high (Stamm, 2010)*

Table 3. Descriptive Statistics for Burnout, Secondary Traumatic Stress, and Compassion Satisfaction scores

	Mean	SD	Min	Max
<b>Burnout (BO)</b>				
All	20.83	6.84	10	39
Veterinarians	20.57	6.43	11	39
Animal Care Specialists	21.18	7.45	10	39
<b>Secondary Traumatic Stress (STS)</b>				
All	18.95	5.80	10	40
Veterinarians	19.08	6.20	11	40
Animal Care Specialists	18.79	5.33	10	32
<b>Compassion Satisfaction (CS)</b>				
All	40.60	7.68	17	50
Veterinarians	41.70	7.57	17	50
Animal Care Specialists	39.14	7.72	24	50

Figure 5. Total distribution of Burnout, Secondary Traumatic Stress, and Compassion Satisfaction



Cronbach's alpha calculations for the subscales of CS, BO, and STS are displayed in Table 4. In general, the reliability of the measures was judged to be high (0.81-0.93).

Table 4. ProQOL-V Subscale Reliability

<i>Item</i>	<i>Study Cronbach Alpha</i>
<i>Burnout (BO)</i>	0.86
<i>Secondary Traumatic Stress (STS)</i>	0.81
<i>Compassion Satisfaction (CS)</i>	0.93

Results of unadjusted linear regression testing the strength of association between the exposures of interest and outcomes are displayed in Table 5. Statistically significant associations with higher levels of BO within the study population included working with non-human primates, self-reported difficulty working with primary investigator, higher levels of loneliness, and higher levels of euthanasia distress. Higher levels of STS in the study population were found to be statistically significant associated with working with non-human primates, higher levels of loneliness, and higher levels of euthanasia distress. Self-reported difficulty working with primary investigators, higher levels of loneliness, and higher levels of euthanasia distress were all seen to also be statistically significant in association with decreased CS. The survey population did not reveal statistically significant associations between respondents working with Category E studies and BO, STS, or CS.

Table 5. Results of unadjusted linear regression analysis modeling associations between exposures of interest and burnout, secondary traumatic stress, and compassion satisfaction.

Exposure	Burnout			Secondary Traumatic Stress			Compassion Satisfaction		
	$\beta$	95% CI	P value	$\beta$	95% CI	P value	$\beta$	95% CI	P value
Nonhuman Primates (vs other species)	4.0*	0.3-7.8	0.03	2.7*	-0.002, 5.4	0.05	-0.3	-4.0, 3.5	0.89
Category E studies (vs other)	1.7	-2.4, 5.8	0.44	1.5	-1.2, 4.2	0.27	0.4	-4.1, 5.0	0.85
Difficulty working with Primary Investigator	3.3	-0.2, 7.0	0.06	2.4	-0.9, 5.7	0.15	-3.7	-8.0, 0.6	0.09
Loneliness	0.5*	0.3, 0.6	<0.001	0.3*	0.1, 0.4	0.001	-0.4*	-0.6, -0.2	<0.001
Euthanasia Distress	0.6*	0.3, 0.9	<0.001	0.5*	0.2, 0.8	0.003	-0.6*	-1.0, -0.3	<0.001

*B* is the linear regression coefficient; it represents the difference in the outcome associated with a one-unit difference in the exposure.

\*indicates statistical significance ( $p \leq 0.05$ )

Adjusted linear regression results are displayed in Table 6. Adjusting for age, sex, military occupational specialty, and time spent working with research animals, the average BO scale score reported for survey respondents working with non-human primates was 7.8 points higher (95% CI [3.3, 12.3]; p-value 0.001), STS score was 4.6 points higher (95% CI [1.2, 8.0]; p-value 0.01), and CS score was 5.0 lower (95% CI [-10.1, -0.2]; p-value 0.06) than survey respondents who reported not working with non-human primates.

In a model adjusting for the same covariates, using reported difficulty working with primary investigators as a top job stressor as the exposure, survey respondents who reported such difficulty had, on average, BO scores 3.8 points higher (95% CI [0.3, 7.3]; p-value 0.03), STS scores 2.5 points higher (95% CI [-0.8, 5.9]; p-value 0.14), and CS scores 4.0 points lower (95%

CI [-7.7, -0.4]; p-value 0.03), than those who did not report difficulty working with primary investigators as a top job stressor.

In a model using loneliness as the exposure of interest, with the same covariate adjustments, for each 10 point increase in scores on the loneliness scale, respondents scored, on average, 4.0 points higher (95% CI [3.0, 6.0]; p-value < 0.001) on the BO scale, 3.0 points higher (95% CI [1.0, 4.0]; p-value 0.001) on the STS scale, and 4.0 points lower (95% CI [-5.0, -2.0]; p-value < 0.001) on the CS scale.

In a model adjusting for sex, age, military occupational specialty, time spent working with research animals, and experience working with non-human primates, each 5 point increase in scores on the euthanasia distress scale was associated, on average, with a score 3.0 points higher (95% CI [1.0, 4.5]; p-value < 0.001) on the BO scale, 2.5 points higher (95% CI [0.5, 4.0]; p-value 0.007) on the STS scale, and 2.5 points lower (95% CI [-4.5, -1.0]; p-value 0.006) on the CS scale.

Table 6. Results of adjusted linear regression analysis modeling associations between exposures of interest and burnout, secondary traumatic stress, and compassion satisfaction.

Exposure	Burnout			Secondary Traumatic Stress			Compassion Satisfaction		
	$\beta$	95% CI	P value	$\beta$	95% CI	P value	$\beta$	95% CI	P value
<i>Nonhuman Primates (vs other species)</i>	7.8*	3.3, 12.3	0.001	4.6*	1.2, 8.0	0.01	-5.0	-10.1, -0.2	0.06
<i>Category E studies (vs other)</i>	4.1	-1.3, 9.5	0.15	3.1	-0.9, 7.1	0.13	-3.8	-9.4, 1.8	0.18
<i>Difficulty working with Primary Investigator</i>	3.8*	0.3, 7.3	0.03	2.5	-0.8, 5.9	0.14	-4.0*	-7.7, -0.4	0.03
<i>Loneliness</i>	0.4*	0.3, 0.6	<0.001	0.3*	0.1, 0.4	0.001	-0.4*	-0.5, -0.2	<0.001
<i>Euthanasia Distress<sup>+</sup></i>	0.6*	0.2, 0.9	<0.001	0.5*	0.1, 0.8	0.007	-0.5*	-0.9, -0.2	0.006

$\beta$  adjusted for age, sex, time spent working with research animals, and military occupational specialty (technician vs. veterinarian).

<sup>+</sup>also adjusted for working with non-human primates vs other species

\*indicates statistical significance

In larger multivariate, linear regression models, adjusting for the other statistically significant exposures, as well as sex, age, military occupational specialty, and time spent working with research animals, all previously statistically significant exposures for the outcomes of BO and CS remained statistically significant. When adjusting for all significant exposures, confounders, and precision variables, loneliness was the only statistically significant risk factor for the outcome of STS.

## Discussion

Our study of military lab animal workers, to the best of our knowledge the largest and most rigorous study assessing compassion fatigue in laboratory animal veterinary personnel, found job related stressors to contribute to decreased compassion satisfaction and increased

burnout and stress. While most of the survey population reported low BO (63%), STS (85%), and high CS (52%), the study did identify the prevalence of moderate BO (37%), STS (15%), and CS (54%) within the population.

High CS may counterbalance BO and STS experienced by individuals. High reported CS may be unique to the military population, as the U.S. Army has several training programs and resources to support occupational and behavioral health of personnel. For example, active duty personnel are required to complete annual resiliency training. In addition, active duty personnel have readily available behavioral health resources, to include behavioral health clinics available 24 hours a day, 7 days a week, free counseling services through Military One Source, ability to speak with and receive confidential counsel from chaplains, and a well-defined support structure through the chain-of-command. Regular feedback on job performance is received through quarterly counseling and annual performance evaluations. Other benefits active duty personnel experience that may increase their job satisfaction when compared to their civilian counterparts include being salaried employees of the government, having little to no student loan debt, receiving comprehensive healthcare at no cost through the military healthcare system, and having the opportunity for career advancement through promotion.

As demonstrated by the DAG in Figure 1, there are numerous factors that contribute to the development of compassion fatigue. The main variables hypothesized to impact CF (as measured by BO, STS, and CS) were loneliness, category of study, animal species, euthanasia distress, military occupational specialty, and lack of self-care. Lack of self-care was unable to be observed/measured in the survey. Military occupational specialty was included in multivariate linear regression analysis as a precision variable. The remaining variables were exposures of interest and were hypothesized to be associated with each of the three components of CF.

The use of nonhuman primates in research has been reported by individual researchers to contribute to strong moral struggles (Sharp, 2019). (Chang & Hard, 2002) found animal caregivers and veterinarians working in laboratories on University of California campuses reported not wanting to work with primates out of concern for managing their emotional involvement. In this study, working with nonhuman primates was found to be significantly associated with increased BO and STS. Although the observed association with CS was not significant ( $p = 0.06$ ), results suggest working with nonhuman primates may be associated with less CS. Though there are no current studies researching the impact of psychological distress of workers who work with nonhuman primates, this study provides evidence that this is an area that may be of interest in further research studies. It is not surprising that different species of animals invoke different levels of attachment by those who work with them, depending on how similar to humans the animal is perceived to be (i.e. ability of animal to express empathy, intelligence, etc.), or the experiences they have had with specific animals in the past, either at home or in the workplace (Sharp, 2019). This implication of working with nonhuman primates should be considered by animal research facilities in assessing workplace hazards for employees in animal research environments.

The associations of working with animals in Category E studies were not statistically significant, however results in Table 5 suggest Category E studies may be associated with higher levels of BO, STS, and lower CS. Future studies with a larger population are indicated to gather more information on the significance of this association.

Statistically significant associations were found for individuals who reported difficulty working with primary investigators with increased BO and decreased CS. Results suggest difficulty working with primary investigators may also be associated with decreased STS. These

results are not surprising, as the experiences with animals and motivations of primary investigators and laboratory animal medicine personnel are often different. Primary investigators are primarily interested in generating quality data, while animal care personnel are concerned with animal care and enrichment (Sharp, 2019). According to Sharp (2019), laboratory animal veterinarians and animal technicians often grow up around animals, while few researchers grow up with animals as either pets or livestock; veterinarians and technicians enter the field due to their affinity for animals, while researchers are attracted by the science. The recognition of these interactions as a main stressor in the population and the impact on CF indicates a need for training or interventions. Training should focus on mitigating the stressor by fostering mutual understanding and improving communication between lab animal medicine personnel and primary investigators.

Higher loneliness scores were associated with higher BO and STS, as well as lower CS. These findings were statistically significant. Many risk factors to loneliness in active duty personnel are unique to military populations, as the hierarchical structure and overall culture of the military differs dramatically from those of civilian life (Cacioppo et al., 2016). Cacioppo, et al. (2016) found platoon cohesion and support, relationship satisfaction with friends, and relationship satisfaction with platoon members to be protective factors for loneliness among active duty personnel. Further studies to increase understanding the risk factors to loneliness specific to active duty laboratory animal medicine personnel can better inform how to prevent both loneliness and resultant CF in the population. Meanwhile, leadership of laboratory animal medicine personnel should consider increasing opportunities for camaraderie and team building to combat loneliness.

Euthanasia distress levels were statistically significantly associated with higher BO and STS and lower CS. Many studies report that veterinary personnel consider euthanasia to be one of the main causes of occupational stress (Black et al., 2011; Penix, et al., 2019; Rohlf & Bennett, 2005; Scotney et al., 2015). Euthanasia of research animals may be a daily occurrence, but there have been minimal studies on the resulting emotional stress of those providing care for animals (Scotney et al., 2015). Scotney, et al. (2015) present euthanasia distress as a key contributor to CF development in animal caregivers, though recognize the contributions of other common occupational stressors as well. Understanding the connection of euthanasia distress with CF may help leaders and behavioral health personnel who interact with army veterinary personnel provide better emotional and psychological support and resources to cope with this stressor.

This study has several limitations to consider. Though the survey population was small, the demographics of the population are reasonably representative of the target population (US Army laboratory animal medicine veterinarians and animal care specialists working in animal research environments). At the same time, the results are indicative of the survey population and may not be representative of all US Army lab animal medicine personnel. Nonresponse bias may be present, as those who chose to participate in the study may be more likely to be unhappy working in research environments than those who did not participate, which would cause study results to be skewed. Additionally, the survey population was small (n=65), though this is estimated to represent 45% of the target population (estimated to be ~150 personnel). The study relies on self-reported data, asking respondents to describe their experience while working in animal research environments within five years of survey administration, which may be subject to recall bias. Self-care, which was hypothesized in the DAG (Figure 1) to be associated with CF

was unable to be assessed in the survey. Quantitative methods alone were used to assess the impact of the exposures on CF; future studies could incorporate mixed method studies to further evaluate how the population is impacted through use of focus groups or individual interviews. Qualitative methods would be especially beneficial in determining the impact self-care has on CF.

Respondents who indicated moderate levels of BO, STS, and CS represent a proportion of the population in which there is room for improvement. Interventions within the population may be warranted to support a shift in those who report moderate levels of BS, STS, and CS to reporting low BO and STS, and high CS. Understanding which specific factors impact levels of BO, STS, and CS is important to developing appropriate initiatives for intervention to support wellbeing and improve the outcomes within the population.

Though limitations were recognized, this study is valuable in recognizing the prevalence of moderate levels of BO, STS, and CS in US Army active duty veterinary personnel working in laboratory animal medicine, as well as the absence of high BO or STS in the survey population. It is the first to determine if CF, as measured by BO, STS and CS, is a concern in the laboratory animal medicine workplace, and to assess exposures that may be associated with higher BO, STS, and less CS. This knowledge is useful in guiding the development of training and programs to reduce and prevent CF within the population. Additionally, it identifies areas where more research is indicated to assess CF in laboratory animal research environments.

## **Conclusion**

The development of CF is multifactorial. Understanding the factors associated with higher levels of BO, STS, and lower CS can give insight to creation of prevention strategies to

mitigate CF in the population. This study evaluated the prevalence of compassion fatigue and satisfaction in active duty veterinary personnel working in animal research. Moderate levels of CS, BO, and CS were present in the study population, revealing a proportion of the population that may benefit from intervention programs. No high levels of BO or STS were reported, while a majority of respondents indicated high CS. Working with nonhuman primates, difficulty working with primary investigators, loneliness, and euthanasia distress were determined to be associated with higher BO, STS, and/or lower CS. Additional research is indicated to determine the extent these factors influence development of CF in laboratory animal medicine personnel to further assist in development of intervention and support programs within animal research facilities.

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## DISCLAIMER

The contents of this publication are the sole responsibility of the author and do not necessarily reflect the views, opinions, or policies of the Department of Defense (DOD), the Departments of the Army, Navy, or Air Force, or Army Veterinary Services.

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# **SURVEY INTRODUCTION**

The purpose of this survey, as requested by the Chief of the Veterinary Corps, is to evaluate your workplace satisfaction working in animal research environments. This is the first survey of this type given to veterinary personnel in animal research environments, which is why your participation is very important.

The anonymous survey is being conducted by behavioral health experts with the Army Public Health Center (APHC), Division of Behavioral & Social Health Outcomes Practice (BSHOP) based in Aberdeen Proving Ground, Maryland. Individual data will not be reported; survey data will only be reported in aggregate, or combined, form to ensure the utmost level of anonymity. You will NOT be asked for your name, social security number or Department of Defense ID number.

Findings from the survey will enhance the understanding of the overall behavioral and occupational health experiences of Army Veterinary Service Soldiers in Laboratory Animal Medicine. Our objective is to make recommendations based on the cumulative survey responses to increase workplace satisfaction and reduce your level of work-related stress. These findings may also contribute to informing new policies and program development to increase workplace satisfaction for workers in animal research environments.

The survey will cover a range of topics, including demographic information, social support, and personal experiences. While taking the survey, you may notice that some questions do not appear in sequential order. This is due to skip patterns that route participants to relevant questions based on demographic characteristics.

Although some of these topics may be sensitive, honest answers would be most helpful in providing meaningful recommendations. Your survey responses and feedback are very important for improving the workplace satisfaction for yourself and your fellow coworkers.

Thank you for taking the time to complete this survey.

# **SURVEY CLAUSES AND CONSENT**

## **Procedures**

If you agree to take part in this survey, you can expect the following:

You will be invited to complete a survey regarding your background, thoughts, opinions, and current beliefs pertaining to your workplace satisfaction.

You will complete this web-based survey that should take approximately 10 minutes.

Your participation in this survey is voluntary and there will be no disciplinary action if you choose not to participate.

**Risks and/or Discomforts**

This survey includes sensitive questions that may trigger an emotional reaction. If this occurs, you may stop at any time and save your responses to complete the survey at another time before the survey closes. If you experience adverse emotional discomfort during this survey, please dial 911. Additionally, a list of behavioral health resources will be provided at the conclusion of the survey for anyone seeking assistance.

All information you provide will be treated as confidential and anonymous. You will not be asked your name, social security number, or other directly identifying information. We do capture demographic information in the survey, but all results will be rolled up and presented in group form.

If you have any questions, complaints or concerns about this project please contact the APHC Human Protections Administrator at 410.417.2611/dawn.m.eslinger.civ@mail.mil. The Human Protections Administrator is NOT a member of the project team.

**Benefits**

While there are no direct benefits to you at this time, the information you provide in this survey will assist leaders in better understanding your workplace experiences and developing new initiatives to enhance workplace satisfaction in animal research environments.

**Cost/Financial Considerations**

There will be no costs to you as a result of taking part in this survey.

**Reimbursement/Payment**

There will be no reimbursement/payment to you for participation in this survey.

**1. Consent**

I understand that participation in this survey is voluntary and I may stop at any time.

Agree

**2. How long have you been in the Army?**

- Less than 1 year
- 1-4 years
- 5-9 years
- 10-19 years
- 20 or more years

**3. What is your sex?**

- Male
- Female

**4. What is your age?**

- Younger than 20
- 20-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-44 years
- 45-49 years
- 50-54 years
- 55-59 years
- $\geq$  60 years

**5. What is your Grade/Rank?**

- E1 - E4
- E5 - E6
- E7 - E9
- O1 - O3
- O4 - O7
- Other \_\_\_\_\_

**6. What is your Military Occupational Specialty (MOS)?**

- 64A
- 64C
- 64E
- 68T

**7. Have you previously deployed in Support of a conflict/war operation?**

- Yes
- No

**8. Select the one response that best describes your current employment environment.**

- Laboratory/research
- Staff Officer
- Personnel management/administration
- Long-Term Health Education and Training (LTHET) in laboratory Animal Medicine or combined Laboratory Animal Medicine/MPH program
- Other \_\_\_\_\_

**9. In the past five years, have you worked with/handled research animals?**

- Yes
- No

Destination: **Job Duties** (Set in 9 (Yes))

Destination: **Physical Health** (Set in 9 (No))

(End of Page 3 )

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**10. In your current role, do you work with/handle research animals?**

- Yes
- No

**11. Please indicate the length of time you have spent working with/handling research animals.**

- Less than 6 months
- 6-12 months
- 1-3 years
- 3-6 years
- More than 6 years

**12. Please indicate the category of animal study pain levels you have supported while working with/handling research animals? SELECT ALL THAT APPLY**

- Category B
- Category C
- Category D
- Category E
- Not Applicable

**13. Please indicate which species you have worked with in DoD research facilities? SELECT ALL THAT APPLY**

- Rats
- Mice
- Hamsters
- Goats
- Pigs
- Ferrets
- Sheep
- Rabbits
- Guinea Pigs
- Nonhuman Primates
- Zebra Fish
- Other \_\_\_\_\_

(End of Page 4 )

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**14. Are you currently involved in the euthanasia of research animals?**

- Yes
- No

**15. Have you ever been involved in the euthanasia of research animals?**

- Yes
- No

**16. When not working in support of biomedical research, on average, how often were you required to perform euthanasia?**

- Never
- Daily
- Weekly
- Semiannually
- Annually

**17. While working with/handling research animals, how frequently have you performed euthanasia for reasons that you did NOT agree with?**

- Never
- Rarely
- Sometimes
- Often
- Always

**18. The statements below are about your feelings and emotions about animal euthanasia. Please read each statement and describe how much you agree or disagree with each statement.**

	<b>Strongly disagree</b>	<b>Somewhat disagree</b>	<b>Neutral</b>	<b>Somewhat agree</b>	<b>Strongly agree</b>
It is difficult to hide one's emotions when performing euthanasia on a laboratory animal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performing euthanasia is	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

emotionally draining.

Thinking about performing euthanasia makes me anxious.

The physical act of performing the euthanasia is disturbing to me (e.g., administering the injection).

It would bother me if an animal I was euthanizing vocalized when I administered the euthanasia solution or injection.

It would bother me if an animal I was euthanizing by carbon dioxide chamber tried to escape while I administered the gas.

It would bother me if

I had  
to euthanize  
healthy  
animals that  
reach their  
experimenta  
l endpoint,  
but are not  
deemed  
adoptable.

It would  
bother me  
more  
to euthanize  
sensitive  
species  
(nonhuman  
primates,  
dog, cats, or  
marine  
mammal).



**19. When you work with/handle research animals you have direct contact with their lives. As you may have found, your compassion for those you help can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a veterinarian or technician in animal research environments. Consider each of the following questions about you and your work with laboratory animals. Select the response that honestly reflects how frequently you experienced these things while working with laboratory animals in DoD Research and Development.**

	Never	Rarely	Sometimes	Often	Very often
I am happy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am preoccupied with more than one animal I help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get satisfaction from being able to help animals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel connected to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I jump or am startled by unexpected sounds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel invigorated after working with those animals I help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it difficult to separate my personal life from my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

as an Army  
veterinarian  
or  
technician  
in animal  
research  
environment

s.

I am not as  
productive  
at work  
because I  
am losing  
sleep over  
traumatic  
experiences  
of animals I  
help.

I think that I  
might have  
been  
affected by  
the  
traumatic  
stress of  
those I help.

I feel  
trapped by  
my job as an  
Army  
veterinarian  
or  
technician  
in animal  
research  
environment

s.

Because of  
my helping,  
I have felt  
"on edge"  
about  
various  
things.

I like my  
work as an

Army  
veterinarian  
or  
technician  
in animal  
research  
environment

s.

I feel depressed because of the traumatic experiences of the animals I help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel as though I am experiencing the trauma of an animal I have helped.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have beliefs that sustain me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am pleased with how I am able to keep up with lab animal medicine techniques and protocols.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am the person I always wanted to be.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My work makes me feel satisfied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel worn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

out because  
of my work  
as an Army  
veterinarian  
or  
technician  
in animal  
research  
environment  
s.

I have  
happy  
thoughts  
and feelings  
about those  
animals I  
help and  
how I could  
help them.

I feel  
overwhelme  
d because  
my work  
load seems  
endless.

I believe I  
can make a  
difference  
through my  
work.

I avoid  
certain  
activities or  
situations  
because  
they remind  
me of  
frightening  
experiences  
of the  
animals I  
help.

I am proud  
of what I  
can do to  
help.

As a result of my helping, I have intrusive, frightening thoughts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel "bogged down" by the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have thoughts that I am "success" as an Army veterinarian or technician in animal research environments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't recall important parts of my work with research animals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a very caring person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am happy that I chose to do this work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(End of Page 6 )

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**20. Please select the factors that you consider the most stressful about your job: SELECT ALL THAT APPLY**

- Access to lethal means
  - Administrative tasks
  - Animal death from euthanasia (euthanizing healthy animals)
  - Animal death (from illness)
  - Animal death from therapeutic euthanasia (euthanizing following terminal procedures)
  - Career concerns and disenchantment with career
  - Constantly changing work environment
  - Dealing with primary investigators and their expectations
  - Dealing with personal, or staff grief
  - Demands of practice (e.g., work overload, competing demands, pressure)
  - Disease outbreaks
  - Ethical challenges (for example, balancing animal and human interests)
  - Lack of feedback and appreciation for performance
  - Lack of participation in decision making
  - Limited resources
  - Long work hours
  - Making professional mistakes
  - Poor social support
  - Responsibilities of clinical operations
  - Unclear management and work role
  - Unpleasant or dangerous physical conditions (for example, exposure to zoonotic disease, etc.)
  - Unrealistic job expectations
  - Work interfering with personal or family time
  - Preparation for external inspections
  - Communicating jobs to family/friends
  - Communicating job to acquaintances
  - Reviewing research protocols
  - None of the above
  - Other
- 
-

**21. Coping with feelings of grief related to veterinary medicine is easy for me:**

- Strongly disagree
- Somewhat disagree
- Not sure/undecided
- Somewhat agree
- Strongly agree

**22. Please select ALL items that help you cope with personal and professional stress in your life: SELECT ALL THAT APPLY**

- Acting violently
- Alcohol consumption
- Cleaning/Organizing
- Compulsive shopping
- Consuming excess caffeine
- Continuing education/Professional development
- Creating socially supportive relationships
- Deep breathing exercises
- Doing arts and crafts
- Drawing from cultural and spiritual beliefs
- Driving recklessly
- Dwelling on the past
- Emotionally detaching from work
- Engaging in dark humor
- Engaging in risky sexual activity
- Excessive sleeping
- Exercising/Stretching
- Gambling
- Horseback riding
- Increasing management support and formal mentorship
- Interacting/Socializing/Spending time with companion animals (e.g. dogs, cats, ferrets, pocket pets, horses)
- Listening to/Playing music/Singing
- Meditating/Praying
- Negative self-talk
- Overeating/Undereating
- Pacing
- Participating in an organized religion
- Playing games/Puzzles
- Playing sports
- Plotting revenge
- Professional counseling
- Reading
- Relaxation techniques
- Searching for/Utilizing online and community resources

Socializing with friends/family

- Substance use (excluding alcohol and tobacco use)
- Tobacco use
- Verbally lashing out at others
- Watching television/Movies
- Withdrawing from social support/Isolation
- Writing/Journaling
- Yoga
- None of the above
- Other

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**23. Please rate how much you disagree or agree with the following statements.**

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree or disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
My work provides me with a sense of pride.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the kind of work I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my job as a whole.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My work makes good use of my skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job gives me the chance to acquire valuable skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24. I made the right career choice to enter the veterinary profession.**

- Strongly disagree
- Somewhat disagree
- Not sure/undecided
- Somewhat agree
- Strongly agree

**25. I am happy about contributing to DoD Research and Development.**

- Strongly disagree
- Somewhat disagree
- Not sure/undecided
- Somewhat agree
- Strongly agree

**26. I feel like I am making a contribution to society through working within DoD Research and Development.**

- Strongly disagree

- Somewhat disagree
- Not sure/undecided
- Somewhat agree
- Strongly agree

**27. I currently feel the same sense of satisfaction about helping/handling animals as when I entered the Army Veterinary Service.**

- Strongly disagree
- Somewhat disagree
- Not sure/undecided
- Somewhat agree
- Strongly agree

**28. In the future, would you like to see the following implemented in lab animal research environments to improve job satisfaction and decrease risk of compassion fatigue? SELECT ALL THAT APPLY**

- Annual Recognition of animals who have given their life for research
- Shared study outcomes from the Primary Investigators
- Increased communication between Primary Investigators, veterinary staff, and animal caretakers regarding timelines for end of study, animal movement to different facilities.
- Communication workshops to assist in describing your roles and responsibilities in lab animal research to friends/family/public
- Naming of animals in research environments (official or unofficial)
- Increased opportunities for camaraderie with peers in research and development environments
- Other \_\_\_\_\_

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**29. . Indicate how often each of these statements describe you?**

	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Always</b>
How often do you feel that you are “in tune” with the people around you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel that you lack companionship?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel that there is no one you can turn to?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel alone?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel part of a group of friends?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel that you have a lot in common with the people around you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel that you are no longer close to anyone?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

do you feel  
that your  
interests and  
ideas are not  
shared by  
those  
around you?

How often

do you feel  
outgoing  
and  
friendly?

How often

do you feel  
close to  
people?

How often

do you feel  
left out?

How often

do you feel  
that your  
relationships  
with  
others are  
not  
meaningful?

How often

do you feel  
that no one  
really  
knows you  
well?

How often

do you feel  
isolated  
from others?

How often

do you feel  
that you can  
find  
companions  
hip when  
you want it?

How often

do you feel

that there  
are people  
who really  
understand  
you?

How often do you feel shy?

How often do you feel that people are around you but not with you?

How often do you feel that there are people you can talk to?

How often do you feel that there are people you can turn to?

**30. I receive adequate social support from the following source(s):**

**SELECT ALL THAT APPLY**

- My coworkers
- My friends
- My community members (e.g. church, school, neighborhood)
- My spouse
- My family members
- Behavioral health providers
- My leadership
- Other \_\_\_\_\_
- I do not receive adequate social support

**31. How often do you work in isolation (e.g. isolated locations, working with few personnel)?**

- Never
- Rarely
- Sometimes

- Often
- Always

**32. How often are there opportunities to interact with other members of the Veterinary Service that work with laboratory research animals?**

- Never
- Rarely
- Sometimes
- Often
- Always

**33. What additional training or professional development opportunities would you like to receive? SELECT ALL THAT APPLY**

- Stress management
- Suicide prevention
- Conflict resolution
- Team dynamics
- Resilience
- Leadership
- Communication strategies for external public
- Preventing and managing compassion fatigue and burnout
- Other \_\_\_\_\_
- No additional training is needed

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**34. Please rate how much you disagree or agree with the following statements. I am comfortable speaking with...**

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree or disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
...my family about my work in lab animal medicine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...my colleagues/peers about my work in lab animal medicine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...my friends about my work in lab animal medicine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...acquaintances about my work in lab animal medicine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...the general public about my work in lab animal medicine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**35. Please rate how much you disagree or agree with the following statements.**

<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Often</b>	<b>Very Often</b>
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I hesitate to answer when others ask what I do in my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I have to defend what I do in my job supporting research in development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not have an answer when asked about why animals in research are important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not have an answer when asked why the DoD uses animals in research.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**36. Please rate how much you disagree or agree with the following statements.**

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree or disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
Primary investigators communicate well with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

veterinary staff and animal caregivers regarding end of study and/or movement of animals within the facility.

Veterinary

staff and animal caregivers at all levels are informed about the impact of research projects they have supported.

Communication

between Primary Investigators, veterinary Staff, and animal caregivers could be improved.

I always know when the animals I support are going to be euthanized.

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**37. How well do the following statements describe your personality? I see myself as someone who...**

	<b>Disagree strongly</b>	<b>Disagree a little</b>	<b>Neither agree or disagree</b>	<b>Agree a little</b>	<b>Agree strongly</b>
...is reserved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is generally trusting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...tends to be lazy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is relaxed, handles stress well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...has few artistic interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is outgoing, sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...tends to find fault with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does a thorough job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...gets nervous easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...has an active imagination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**38. Please rate your level of satisfaction with your overall health.**

- Not at all satisfied
- Slightly dissatisfied
- Somewhat satisfied
- Moderately satisfied
- Extremely satisfied

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## **BEHAVIORAL HEALTH RESOURCES**

If you are experiencing any negative or adverse emotional discomfort as a result of this survey, please contact one of the following resources:

### **1. Emergency – 911**

**2. Military Crisis Line - 1-800-273-TALK (8255) - Press 1:** Active, Reserve or National Guard service members in crisis or service members who are in need of urgent help can call "The Military Crisis Line," a confidential support line that's accessible 24 hours a day, 7 days a week and 365 days a year.

**3. National Suicide Prevention Lifeline - 1-800-273-TALK (8255):** The National Suicide Prevention Lifeline is a national network of local crisis centers that provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. We're committed to improving crisis services and advancing suicide prevention by empowering individuals, advancing professional best practices, and building awareness.

**4. Military One Source - 1-800-342-9647:** Military OneSource is both a call center and a website, providing free, comprehensive information and resources on every aspect of military life to service members (regardless of activation status), their families and survivors. Military OneSource is here to help you handle many of life's everyday challenges. Plus, you can prepare for some of the unique aspects of military life — like an upcoming deployment or a move to a new installation.

**5. The Defense Center of Excellence (DCoE) - 1-866-966-1020:** The mission of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) is to improve the lives of our nation's service members, veterans and their families by advancing excellence in psychological health and traumatic brain injury prevention and care.

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## **SURVEY CLOSING**

Thank you for your time and patience! Your responses are very valuable to us!  
If you are finished with the survey, click 'Submit Survey' to register your answers. Have a great day!

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