A Preliminary Study of Mental Health and Wellness in the Veterinary Field in Pinellas County Florida

By

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CERTIFICATE OF APPROVAL

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Abstract:

The suicide rate for veterinarians has been steadily increasing over the last half-century, both across America and the world. However, there is a lack of awareness in the veterinary field regarding this issue as well as what increases veterinarians risk for suicidal ideation. The purpose of this study was to examine what work-related stressors are most common and most influential in the field of veterinary medicine in order to understand the underlying causes of the increased suicide rate among veterinarians. A Qualtrics© made questionnaire was sent through email messaging to 107 Pinellas County veterinarians from September 17 to October 22, 2018. Personal information that would allow for identification of responses, including IP addresses, was excluded in order to maintain anonymity. The survey included demographics questions sampling gender, race, age, years practicing, location of practice, position in the veterinary field, and type of veterinary medicine being practiced. The questionnaire also asked about job satisfaction, future occupational plans, occupational influence on mental health, and awareness of mental health in the veterinary field. Participants ranked stressors known to increase susceptibility to suicidal ideation on a 1-7 Likert Scale from two perspectives: on prevalence in the veterinary field, and on the effect that each professional stressor had on their personal health. The most influential stressors on the respondents' personal health were found to be client complaints and client expectations, which were also ranked 3rd and 4th in prevalence in the field. This suggests client relations are one of the major stressors in the veterinary field and could be prominent in the increasing suicide rate. Occupational burnout, demands of the practice, and practice management responsibilities were also highly ranked in both prevalence and influence. However, familiarity with euthanasia was ranked 8th in prevalence and 12th in influence, thus suggesting familiarity with euthanasia has very little effect on the mental health of veterinarians.

This data is useful in spreading awareness of the increased suicide rate in the veterinary field and also reveals information on the possible stressors specific to the veterinary field. Understanding occupational stressors can help prepare future veterinarians for potential obstacles they may encounter while in practice, and stress the importance of the implementation and improvement of veterinary specific wellness programs.

Introduction:

The veterinary field has experienced an increase in suicide rate, both nationwide and worldwide. The Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health (NIOSH) released data on veterinarian mortality rates from suicide between the years 1979 to 2014. In the 36-year study, male veterinarians were 2.1 times as likely to die from suicide, and 3.5 times more likely for female veterinarians, than the general population (Larkin 2018).

Although this issue has only recently come to light, it has been ongoing for almost half a century. Blair and Hayes (1982) examined mortality patterns of U.S. veterinarians from 1947-1977 using obituary listings in the Journal of the American Veterinary Medical Association (JAVMA). Blair and Hayes (1982) found suicide risk for white male veterinarians was 1.7 times than that of the general population. Another study analyzed the deaths of California veterinarians from 1960 to 1992 and discovered that the suicide risk for this group was 2.6 times higher than that of the general population (Miller and Beaumont 1995).

Despite the prevalence of depression and suicidal ideation among veterinarians, many veterinarians are unaware of the rising suicide rates. This suggests that although it is a common experience for one's mental health to be negatively affected by the veterinary field, there is little discussion regarding mental health among the veterinary community. It is concerning truth that

veterinarians are at a much higher risk for suicide than the general population or other professional groups and that a majority of veterinarians are unaware of this risk (Skipper and Williams 2012).

Mental health illness and an increase in suicide risk in veterinarians is a worldwide concern. A 2001-2012 Australian study found that the standardized mortality ratio (SMR) of veterinarians was 1.92 (192% of expected deaths), whereas the general population's SMR was 1.24 (124% of expected deaths). Moreover, the lower limit of the veterinarian suicide SMR with 95% confidence was 1.14 (114%), which was significantly more deaths than expected during that time (Milner et al. 2015). This data suggests that there could be underlying stressors specific to the veterinary field that make its professionals more susceptible to suicidal ideation and suicide attempts.

The underlying causes of this increase in suicide rate have yet to be determined. Increased risk of depression and other mental illnesses is one contributor to the increased risk of suicide, as these illnesses increases one's risk for suicidal ideation (Sareen et al. 2005, Goldney et al. 2000). Veterinarians, along with other healthcare workers (eg. doctors, nurses), are more at risk for these illnesses due to occupational stress (Madsen at al. 2010). The fact that veterinarians are at risk for depression and other mental illnesses due specifically to occupational stress suggests that veterinarians are at a higher risk for suicidal ideation and suicide attempts due to underlying occupational stressors.

Due to the steady increase of the suicide rate in the veterinary profession, this study was conducted to examine potential underlying occupational stressors that increase risk of mental illness and suicidal ideation in the veterinary field. The stressors isolated for use in this study are as follows: occupational burnout, access to controlled substances, familiarity with euthanasia,

compassion fatigue, client complaints, client expectations, ethical challenges, financial stress due to educational or professional debt, work-related cyberbullying, demands of the practice, practice management responsibilities, competition between practices, and making professional mistakes.

There have been previous studies that examined possible contributing stressors (Nett et al. 2015, Bartram and Baldwin 2008) and one of the most commonly included stressors was occupational burnout. Burnout is generally defined as a sustained response to continuous emotional and relational stressors and is usually attributed to three components: feelings of exhaustion, cynicism, and inadequacy (Maslach et al. 2001). It is thought that burnout could be a contributor to suicidal ideation in healthcare professions specifically, due to the high amount of client interaction and emotional situations (Chopra et al. 2004, Van der Heijden et al. 2008). Thus, burnout was examined in this study as a potential stressor affecting the increased rate of suicide among veterinarians.

The common practice of euthanasia to an animal is the one possible stressor distinctive to the veterinary field and has been theorized on before (Bartram and Baldwin 2008, Neeleman et al. 1997, Tran et al. 2014). The two opposing theories suggest that familiarity with euthanasia either increases ones risk for suicidal ideation, or decreases ones risk for suicidal ideation. However, there is supporting and refuting data for both, and therefore, familiarity with euthanasia may be a potential stressor and should be examined further.

Access to means of suicide is another possible stressor influencing the high suicide rate in veterinarians (Charlton 1995). Since restricting veterinarians' access to these resources would hinder their ability to practice, the commonly used strategy of restricting access to mean of suicide is not feasible, but could be a stressor to keep into consideration as a possible influence on the increased disposition of veterinarians to commit suicide.

Compassion fatigue is another stressor that could contribute to the increased risk of suicide in veterinarians. Platt et al. (2012) found that suicidal considerations in veterinary surgeons were directly related to compassion fatigue. Compassion fatigue is defined as emotional strain due to unalleviated stress from interacting with those suffering from traumatic events (Holcombe et al. 2016). This comes from depleting ones internal emotional resources by empathizing, sympathizing, listening, and comforting those experiencing emotional pain or unrest themselves (Holcombe et al. 2016). As the veterinary field has moved toward emphasizing care for both clients and patients, emotional strain has the potential to increase. This would lead to increase in risk for compassion fatigue as well.

This new phase of client interaction could also be identified as a separate stressor for veterinarians and their staff (JonesFairnie 2008). In fact, dealing with difficult and noncompliant clients was identified as the top stressor eliciting negative emotions for veterinarians, technicians, and administrative staff in a 2008 study (JonesFairnie 2008). Other identifiable stressors included client disputes with billing and fees, disputes about sufficient training and skills, and disputes about supervision (JonesFairnie 2008). This data suggests that compassion fatigue and negative client interactions are most potential stressors affecting the increased suicide risk for veterinarians.

Financial stress due to educational and professional debt is a prominent stressor as seen in the study conducted by Nett et al. (2015). Debt at graduation for veterinary students has increased from 1.1 times the starting salary in 1989 to 2.0 times the starting salary in 2007 (Chieffo et al. 2008). There is also literature that suggests correlations between difficulties repaying debts and suicidal ideation, as well as probable minor mental disorders (Hintikka et al. 1998). Moreover, Nett et al. (2015) found that practice associates were the most common veterinarians to find

educational debt most stressful, with relief veterinarians as a close second. Therefore, status in the practice may also contribute to additional financial stress, and overall risk of suicide in the veterinary field.

Pinellas County, Florida veterinarians were chosen as the population for this study because the local veterinary community has not been sampled individually before. There is vast information regarding national and international veterinary suicide rates as previously discussed (Nett et al. 2015, Larkin 2018, Blair and Hayes 1982, NIOSH), but there are few studies that look at smaller communities such as single states or counties (Miller and Beaumont 1995, Skipper and Williams 2012). It would be useful to the veterinary population of Pinellas County, and Florida as a state, to understand the stressors specific to this community for use in implementing and improving veterinary wellness programs in Pinellas County and Florida. This preliminary data would also provide information on how best to inform veterinarians of the risks posed to them, and prepare future veterinarians for obstacles they may encounter.

Materials and Methods:

An electronic survey was formulated using Qualtrics© survey software. Demographic based questions sampling gender, race, age, years practicing, position in the veterinary field, and in what field of veterinary medicine the individual is practicing, were included. The survey also sampled information about job satisfaction, future occupational plans, occupational influence on mental health, and knowledge on mental health in the veterinary field. A list of stressors affecting mental health in the veterinary field was compiled by referencing stressors used in similar surveys (Nett et al. 2015, Skipper and Williams 2012), as well as those mentioned in literature (Paddock and Marzulli 2014, Neeleman et al. 1997, Tran et al. 2014, Charlton 1995).

This list was included in the survey for individuals to rate based on prevalence in the veterinary field, and again on the stressors influence on their personal mental health. All questions, disregarding demographics, were scored on a 1-7 Likert Scale, which was kept similar across domains in order to maintain internal consistency. The University of South Florida Institutional Review Board approved the survey and research for this study.

Surveys were sent to 107 Pinellas County, Florida veterinarians. This population was constructed using a public list of Pinellas County veterinary clinics provided by the county website. Study population inclusion and exclusion criteria stated that participants must be 18 or older, and must have practiced or be practicing as a veterinarian in Pinellas County. Two responses, which did not follow these criteria, were excluded from the data analysis, resulting in a total of seven veterinarians in Pinellas County, Florida who were used in this study. Personal information that would allow for identification of participants' responses, including IP addresses, was not gathered in order to maintain anonymity.

Email messaging was used to distribute the electronic survey to public emails displayed on clinic websites. The initial email contained a brief explanation of the studies purpose and methods, IRB information, and a downloadable consent document. The survey itself was attached to the end of the consent form via a hyperlink, thus encouraging participants to download and look over the consent form before taking the survey. The survey was made available from September 17th to October 22nd, 2018. A second email was sent out a week before the survey closed in order to encourage non-respondents and increase response rates, as suggested by the Total Design Method. The Total Design Method suggests that sending out multiple reminders with additional surveys attached will increase response rates (Dillman 2011). This reminder email contained all the same aspects as the initial email, but the explanation in the

emails body was altered to emphasize the time limit on the survey. Responses were downloaded weekly, and kept on a password-protected computer in order to maintain privacy. At the end of the one-month period, the survey was closed and the final data was gathered.

The data analysis was accomplished using Microsoft Excel version 14.7.1. The demographics and the agree/disagree statements were analyzed purely on population dispersion and non-parametric statistics in order to divulge any trends. The analysis of the prevalence of the stressors in the veterinary field was accomplished by giving each response on the Likert Scale a numeric value, as follows: extremely common +3, pretty common +2, fairly common +1, no opinion 0, fairly rare -1, pretty rare -2, extremely rare -3. A similar value system was used for how each stressor was ranked on influence in the respondent's personal mental health, and is as follows: extremely influential +3, pretty influential +2, fairly influential +1, no opinion 0, fairly uninfluential -1, pretty uninfluential -2, not influential at all -3. Each stressor was then evaluated by taking the sum of the responses numeric values, and the compiling the stressors into ranked lists based on their total score for prevalence and again on their total score for influence.

Results:

As seen in Table 1, the majority of respondents were female (5/7), all respondents were white (7/7), and the majority was 45 or older (5/7). 6/7 of the respondents responded that they had been practicing for 16 years or more, and 6/7 indicated that they were small animal veterinarians, although one individual indicated they worked with small animals and exotic animals. 4/7 responded that they were practice owners.

Analysis of the respondents' agreement with statements regarding occupation and mental health in their field did result in some trends (Table 2). A majority, 5/7, of respondents agreed to

some extent that they believe they made the right career choice in becoming a veterinarian. 6/7 of the respondents indicated they disagreed or strongly disagreed with the statement “I plan on leaving, or have already left, the veterinary field”. The one respondent left indicated they neither agreed nor disagreed with the statement. The responses following the statement “I feel as though my role in the veterinary field has had a negative effect on my mental health” were the most varied of all the agree/disagree statements. 3/7 agreed to an extent, 2/7 neither agreed nor disagreed, and 2/7 disagreed to an extent. 6/7 agreed or strongly agreed that suicide rates are higher among veterinarians than the general public, with only 1/7 of the respondents indicating that they somewhat disagree.

According to the point system applied to the list of stressors ranked on prevalence, the following was discovered: Compassion fatigue ranked highest at 18 points, while competition between practices was ranked lowest at -3 points. When the stressors were ranked on influence on the respondents’ mental health, client expectations was ranked highest at 13 points, while access to controlled substances was ranked lowest at -13 points (Table 3).

Table 1 – Demographics of Respondents

Demographic		Ratio of Respondents	Percentage of Respondents
Gender	Males	2/7	38.57%
	Females	5/7	71.43%
Race	White or Caucasian	7/7	100%
Age	25-34	1/7	14.29%
	35-44	1/7	14.29%
	45-54	3/7	42.86%
	55-64	2/7	28.57%
Years Practicing	6-10	1/7	14.29%
	16-20	3/7	42.86%
	21-25	1/7	14.29%
	36-40	2/7	28.57%
Position in the field	Practice Owner	4/7	57.24%
	Practice Associate	2/7	28.57%
	Relief Veterinarian	1/7	14.29%
Field of veterinary medicine	Small animal	6/7	85.71
	Exotic animal	1/7	14.29%
	Other (specialty practice)	1/7	14.29%

Table 2 – Agree/Disagree Response Distribution

Statement	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
I believe I made the right career choice in becoming a Veterinarian.	2/7 28.57%	2/7 28.57%	1/7 14.29%	1/7 14.29%	1/7 14.29%	0 0	0 0
I plan on leaving, or have already left, the veterinary field.	0 0	0 0	0 0	1/7 14.29%	0 0	3/7 42.86%	3/7 42.86%
I feel as though my role in the veterinary field has had a negative effect on my mental health.	0 0	1/7 14.29%	2/7 28.57%	2/7 28.57%	1/7 14.29%	1/7 14.29%	0 0
I believe suicide rates are higher among veterinarians than the general public.	3/7 42.86%	3/7 42.86%	0 0	0 0	1/7 14.29%	0 0	0 0

Table 3 – Ranking of stressors by total sum of points

Rank	Stressors by Prevalence		Stressors by Influence	
1.	Compassion fatigue	18 points	Client complaints	15 points
2.	Occupational burnout	17 points	Client expectations	13 points
3.	Client complaints	17 points	Demands of the practice	12 points
4.	Client expectations	16 points	Practice management responsibilities	9 points
5.	Financial stress	15 points	Occupational burnout	9 points
6.	Ethical challenges	14 points	Compassion fatigue	9 points
7.	Demands of the practice	10 points	Ethical challenges	7 points
8.	Familiarity with euthanasia	10 points	Making professional mistakes	6 points
9.	Practice management responsibilities	9 points	Financial stress	4 points
10.	Making professional mistakes	8 points	Work-related cyberbullying	-2 points
11.	Access to controlled substances	7 points	Competition between practices	-7 points
12.	Work related cyber bullying	5 points	Familiarity with euthanasia	-11 points
13.	Competition between practices	-3 points	Access to controlled substances	-16 points

Discussion:

The most notable findings from this study start with Respondent A's responses. When looking at the data for the agree/disagree statements, a majority of respondents agreed to an extent that they had made the right career choice in becoming a veterinarian. Following this, almost all of the respondents disagreed or strongly disagreed that they plan on leaving, or have already left, the veterinary field. However, one respondent (Respondent A) who somewhat disagreed that they made the right career choice also disagreed with planning on leaving the

field. Respondent A somewhat agreed that their role in the veterinary field has had negative effect on their mental health as well. This is a unique set of results, given that Respondent A indicated possible unhappiness in their career but no plans to leave it. Skipper and Williams (2012) also found a similar result where 10% of all respondents (and 15% of all women) were unsure whether they made the right career choice to enter veterinary medicine, 4% of all respondents were not happy being veterinarians, but only 1% of all respondents were planning on leaving the veterinary field. Respondent A also happened to be the youngest participant, as well as the participant practicing for the least amount of time. Respondent A was also the only relief veterinarian represented. According to Nett et al. (2015), 11.2% of relief veterinarians sampled were in current serious psychological distress, which was the second highest percentage when compared to the percentages of associates, owners, and others in psychological distress. Relief veterinarians also had the second most percentage of respondents indicating educational debt as the most stressful stressor in the field. This information could indicate financial stress as a possible reason for Respondent A to have no plans on leaving the field, as well as the rise in debt at graduation for veterinary students from 1.1 times the starting salary in 1989 to 2.0 times the starting salary in 2007 (Chieffo et al. 2008). The 20-29 and 30-39 age groups, and groups with 1-4 and 5-9 years practicing in the field, were also the groups with the highest percentage of those in current serious psychological distress. These trends corroborate Respondent A's responses of unhappiness in the field but reluctance to leave veterinary medicine.

The statement regarding the role of being a veterinarian on one's mental health had the most varied responses of all the agree/disagree statements. The majority of respondents were in agreement, but the majority was only by one response. There were also just as many individuals who neither disagreed nor agreed (2/7) as there were who were in disagreement (2/7). The other

two respondents – referred to as Respondents B and C – who agreed to an extent that their role in the veterinary field has had a negative impact on their mental health also disagreed with the statement that they're considering leaving the field. However, both Respondent B and Respondent C agreed to an extent that they made the right career choice in becoming a vet, which is where they differ from Respondent A. Respondents B and C each have 16-20 years of experience as a vet, and both have consistent work in a practice, thus suggesting consistent income. It has been suggested that older age, increased years in the profession, and increased income all have a positive correlation with job satisfaction (Welsch 1998). Each of these assertions would be supported by the data found in this study regarding Respondent B and C's responses, especially when compared to Respondent A's responses.

Contrasting almost completely to Respondent A, Respondent D strongly agreed that they made the right career choice, strongly disagreed that they were planning on leaving the field, and disagreed that their role as a vet has negatively influenced their mental health. However, Respondent D did agree that suicide rates are higher among veterinarians than the general public, like Respondent A. Most of the respondents agreed to some extent that suicide rates are higher among veterinarians than the general public. Except for Respondent C, who somewhat disagreed that the suicide rate is higher among vets, even though they somewhat agreed that their role as a vet has had a negative impact on their mental health. This suggests that there is a population within the veterinary field that lacks knowledge of the current risk of suicide in the field, thus falling in line with Skipper and Williams (2012) data. Their 2012 survey of 701 Alabama veterinarians revealed that 66% of the sample population had issues with significant clinical depression, and 24% of the sample population had considered suicide since starting vet school. However, only 11% of respondents believed that suicide rates were higher among veterinarians

than other professions or groups (Skipper and Williams 2012). The evidence here suggests that there needs to be increased discussion of mental health in the veterinary field, since there are veterinarians who are experiencing negative impacts to their mental health due to their job, and yet are unaware of the risks posed to them.

The diversity of Respondent A's responses from Respondent B, C, and D's indicate that there is a population within the veterinary field that are dissatisfied with their career, whose careers have had negative effects on their mental health, and yet still choose to stay in the profession. This situation could be common among veterinarians, and could be an indicator for why the suicide rates in the field have increased for the past half-century, thus warranting further investigation of this trend. Respondent C's responses also support the claim that there is a population of veterinarians whose mental health is negatively affected by their career, and yet are unaware of the increasing suicide risk in the veterinary field, and therefore their potential risk for suicidal ideation. This calls for increased discussion of mental health issues in the veterinary field among the veterinary community, as well as implementation and improvement of veterinary specific wellness programs, in hopes to increase awareness of suicide rates among veterinarians and especially those experiencing negative mental health effects due to their career.

Examining the stressors ranks based on influence in comparison to their ranks based on prevalence revealed some interesting trends. Client complaints and expectations were consistently in the top four for both prevalence and influence. This suggests that client interaction plays a large role in the mental health of veterinarians due to their high prevalence and influence, as suggested by JonesFairnie (2008). This also supports the claims made by Madsen et al (2010) on the relationship between healthcare workers and antidepressant use. Their study suggests that the potential mechanism for the strong relationship between healthcare

workers and antidepressant use is that work-related stress is related to excess emotional load, and results in future decline of mental health. Therefore, occupations with high amounts of client contact and high emotional involvement, such as healthcare professions, are more at risk for depression than those with less frequent client contact (Madsen et al. 2010). The high ranking of compassion fatigue with client complaints and expectations supports Holcombe et al (2016) claim that compassion fatigue can be linked to many health professions, but especially to veterinarians now that the field has progressed from patient care alone to tending to both patient and client needs. This data would also align with the claim that occupations that involve extensive care of others are more susceptible to occupational burnout (Chopra et al. 2004) since occupational burnout is included among the top four stressors when ranked on both prevalence and influence. The claim that Van der Heijden et al. (2008) make that those in occupations with increased patient interaction and intense emotional situations are more susceptible to suicidal ideations further supports the data suggesting client complaints and client expectations, and therefore compassion fatigue and occupational burnout are some of the most influential stressors on mental health in the veterinary field.

Demands of the practice and practice management responsibilities were ranked highly when based on influence, but were much lower when ranked on prevalence. This high rank in influence could be due to the high number of practice owners in the sample population, as well as practice associates, since both rely on the management and success of an individual practice. This skewed population, however, would not affect prevalence since prevalence was ranked on how common the stressor is in the filed as a whole whereas influence is based on one's personal experiences. This high rank based on influence would somewhat align with Nett et al (2015) findings, which identify demands of the practice as the most commonly reported stressor by

owners, associates, and relief veterinarians alike. Practice management responsibilities was the second most commonly reported stressor by practice owners, but not by associates or relief veterinarians (Nett et al. 2015). Their results are similar to the results of this study, where demands of the practice is ranked highly in the third spot and practice management responsibilities tied for fourth, however client complaints and client expectations were ranked higher in this study than they were in Nett et al (2015).

The data regarding the lowest ranking stressors was also interesting. The lowest ranking stressors based on influence were similar to the lowest ranking based on prevalence, with some discrepancies. Access to controlled substances came last rather than third to last as it did in prevalence, plus work-related cyberbullying and competition between practices were still in the bottom four. However, familiarity with euthanasia ranked second to last in influence while it ranked eighth in prevalence. This is interesting because there is dispute over euthanasia's true role on the veterinary mind. Studies suggest that veterinarians have a different relationship to suicide because of their exposure to euthanasia, ultimately seeing suicide as more acceptable than the general population (Bartram and Baldwin 2008). In fact, positive correlations have been found between more permissive attitudes toward euthanasia and suicidal ideation and behavior (Neeleman et al. 1997). Conversely, Tran et al. (2014) found that performing euthanasia might lessen the suicide risk for veterinarians with depression, despite popular belief. The high average frequency per week of performing euthanasia weakened the relationship between depressed mood and suicide risk (Tran et al. 2014). Although there is support for both ideas, data remains to be inconclusive, and is therefore a possible influencing stressor in the increased susceptibility of veterinarians to suicide. The fact that euthanasia is fairly prevalent in the veterinary field, but not a considerable influence on the respondent's mental health disputes Neeleman et al. (1997)

idea that more permissive attitudes towards euthanasia increases risk for suicidal ideation and behavior. The alternative presented by (Tran et al. 2014), that euthanasia acts as a buffer against suicidal ideation, can be neither confirmed nor denied by this study. This warrants further investigation since there is still a possibility that Tran et al. (2014) assertion could be supported with a more detailed exploration of euthanasia's effect on veterinarians' mental health.

Although work-related cyberbullying was not identified as an influential or common stressor in this study, it has been influential in the lives of some veterinarians. Dr. Shirley Koshi was 55 years old when she committed suicide in her Manhattan apartment. She had been practicing veterinary medicine for 33 years, and had opened her own practice, Gentle Hands Veterinary Clinic, in the Bronx during July of 2013. Koshi's first year of practice took a turn for the worse in the August of 2013 when a Good Samaritan dropped a sick stray cat off for her to treat. Weeks later, a woman by the name of Gwen Jurmark came to retrieve the cat, claiming the cat was hers since she had him neutered him and oversaw his care for years in the park where he resided. Koshi refused to release the cat, which only infuriated Jurmark. Jurmark sued Koshi in October of that year, which was followed by a public demonstration in front of Koshi's practice and online attacks towards Koshi. Business at Gentle Hands Veterinary Clinic plummeted with all that was following the lawsuit, plus a flood the month previously had damaged the clinic. Koshi had shared with a technician at her practice that she had drained her savings to keep the clinic up and running. Koshi was found dead of an overdose on February 16th, 2014, just 8 months after opening Gentle Hands Veterinary Clinic (Paddock and Marzulli 2014). Dr. Shirley Koshi is an example of cyberbullying in veterinary medicine, and her story warrants further investigation of cyberbullying as an occupational stressor in the veterinary field.

Access to controlled substances was found to be in the bottom four of both stressors ranked on prevalence and influence, but was found to be more prevalent than it is influential, since it was ranked as the least influential stressor of them all. This would suggest that access to controlled substances is not an underlying stressor contributing to the rising suicide rate among veterinarians. The data in this study opposes the 1990-1992 study conducted by Charlton (1995) in England and Wales, which suggests that occupations with access to effective methods of suicide (Charlton 1995) are at a higher suicide risk than other profession. The Center for Substance Abuse Treatment (2008) also found that that self-poisoning is the most common method of suicide for both female and male veterinarians, 89% and 76% respectively, compared to the 46% and 20%, respectively, for suicides in the general population. This would seem to support Charlton (1995) claim given that self-poisoning could be more readily available for veterinarians, however specification of with what the self-poisoning was done was not provided, and therefore it cannot support the claim that occupations with access to effective methods of suicide are more at risk for suicidal attempts.

Competition between practices was among the four least influential stressors, and was identified as the absolute least prevalent stressor in this study and the only stressor to receive negative scores in both prevalence and influence. It was ranked higher in Nett et al (2015) study, landing in the 9 spot for most stressful factors identified by practice owners. However, competition between practices was ranked much lower in Nett et al (2015) study by associate and relief veterinarians. This study had 4/7 respondents being owners with 3/7 respondents being associates or relief vets, which could account for why this data has competition between practices ranked lower overall than Nett et al (2015) does. The results of this study also seem to refute Ruston et al. (2016) assertion that veterinarians' competitiveness is enhanced due to their

specific knowledge and relationship with customers. Their study of large animal veterinarians in the UK revealed that veterinarian's competitiveness is enhanced due to their defined body of knowledge and ability to develop trusting relationships with clients (Ruston et al. 2016). However, this discrepancy in data could be attributed to the lack of large animal veterinarians in this study, and the focus of their study on only large animal veterinarians. Thus this data cannot refute or support Ruston et al. (2016) study.

Alterations to be made for future studies would be to include additional agree/disagree statements to gain a more comprehensive understanding of each respondent's situation. Some possible statements could include some variation of "I wish to leave the veterinary field" in addition to the statement on planning to leave. In Respondent A's situation, their response to this statement might have shed more light on why their string of responses was so different. Another possible statement to include would be "I have experienced suicidal ideation, due in part or in whole to my career", "I have attempted suicide, due in part or in whole to my career", or another form of this in order to gain clear data on whether the field of veterinary medicine influences suicidal ideation or behavior.

Further improvements to this study could be to expand the outreach geographically. Limiting the study to just veterinarians in Pinellas County reduces the pool of individuals being sampled, and thus the amount of responses. For example, the statewide survey conducted by Skipper and Williams (2012) received responses from 701 Alabama veterinarians. The method Skipper and Williams (2012) used of including a paper survey with annual licensing renewal material also proved effective. Switching a paper method rather than electronically delivered surveys might also increase responses. Moreover, then advertising the survey on a site or through an organization heavily trafficked by veterinarians would increase exposure, and thus responses.

The method suggested by Dillman (2011) could also be expanded on further in future studies, meaning that multiple reminders and surveys could increase response rates. The use of public emails from clinic websites could have resulted in more client service representatives or practice managers seeing the survey, rather than the survey being sent to and seen directly by the veterinarians, thus decreasing the amount of usable responses. Offering monetary compensation or some other incentive could also increase responses, and thus increase the amount of data to work with.

Given the findings of this study, there is a need for further investigation of this topic, and the need for changes in how the veterinary community is facing the increased suicide rates. For example, the findings regarding Respondent A show that there is a population who would benefit from specialized information on how to increase job satisfaction as a veterinarian. This information could be provided in veterinary-specific wellbeing programs, or through local veterinary associations, for those who need it. This information could help more veterinarians' in situations like Respondent A, who are reluctant to leave the field but are unsatisfied in their career and want to change that. If finances do play a role in some veterinarians' decisions to stay in a career they're unhappy in, then wellness programs should also address financial stress. This scenario could also be avoided by making sure prospective veterinarians understand the financial aspects of pursuing veterinary medicine as early as possible. Implementing mandatory financial literacy courses in pre-vet curriculum, and encouraging pre-vet clubs to host lectures on the finances of becoming a veterinarian can achieve this goal. Increasing awareness of loan repayment programs would also help recent veterinary school graduates from feeling trapped by debt later on should they become unhappy with their career. Strategies for improving client relations would also benefit the veterinary community, as this could reduce occupational burnout

and compassion fatigue. Implementing or improving upon current vet school curriculum on clinical communications would prepare future veterinarians for managing client complaints. Increasing public awareness of veterinarian's roles, abilities, and limitations would also encourage more accurate expectations from clients. Further discussion on the effect of euthanasia and cyberbullying on the veterinary mind could also lead to vital information. Discussions on the rising suicide rate are necessary as well. These are difficult conversations, but important ones. They should take place at multiple stages throughout the veterinary path, starting in vet school curriculums and continuing on into veterinarian's careers via their state boards of veterinary medicine or local veterinary associations, and through continuing education. Increasing discussion of these topics could reveal more information regarding stressors in the veterinary field, as well as increase awareness of potential mental health risks common in the veterinary field.

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Appendix:

Survey -

Mental Health and Wellness in the Veterinary Field

Q1 Gender

- Male
- Female
- Prefer not to answer

Q2 Race

- White or Caucasian
- Hispanic or Latino
- Black or African American
- American Indian or Alaska Native
- Asian or Asian American
- Native Hawaiian or other Pacific Islander
- Prefer not to answer

Q3 Age

- ○ Under 18
- ○ 18-24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older

Q4 Years practicing veterinary medicine

- ○ Under 1
- ○ 1-5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ 21-25
- ○ 26-30
- ○ 31-35
- ○ 36-40
- ○ Over 40

Q5 Do you practice in Pinellas County?

- ○ Yes
- ○ No
- ○ Not sure

Q6 What position do you currently hold in the veterinary field

- ○ Practice owner
- ○ Practice associate
- ○ Relief veterinarian
- ○ No longer in the field
- ○ Never been a veterinarian

Q7 In what field of veterinary medicine are you currently practicing? Check all that apply.

- ☐ Small animal
- ☐ Large animal
- ☐ Exotic animal
- ☐ Other _____

Q8 Please rate how much you agree with the following statement: I believe I made the right career choice in becoming a veterinarian.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

Q9 Please rate how much you agree with the following statement: I plan on leaving, or have already left, the veterinary field.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

Q10 Please rate how much you agree with the following statement: I feel as though my role in the veterinary field has had a negative effect on my mental health.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

Q11 Please rate how much you agree with the following statement: I believe suicide rates are higher among veterinarians than the general public.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

Q12 Please rate the following work-related stressors based on their prevalence in the veterinary field.

	Extremely rare	Pretty rare	Fairly rare	No opinion	Fairly common	Pretty common	Extremely common
Occupational burnout	○	○	○	○	○	○	○
Compassion fatigue	○	○	○	○	○	○	○
Familiarity with euthanasia	○	○	○	○	○	○	○
Access to controlled substances	○	○	○	○	○	○	○
Ethical challenges	○	○	○	○	○	○	○
Financial stress due to educational or professional debt	○	○	○	○	○	○	○
Client complaints	○	○	○	○	○	○	○
Client expectations	○	○	○	○	○	○	○
Work-related cyberbullying	○	○	○	○	○	○	○
Demands of the practice	○	○	○	○	○	○	○
Practice management responsibilities	○	○	○	○	○	○	○
Competition between practices	○	○	○	○	○	○	○
Making professional mistakes	○	○	○	○	○	○	○

Q13 Please rate the following work-related stressors based on how they affect/affected your personal mental health.

	Not influential at all	Pretty uninfluential	Fairly uninfluential	No opinion	Fairly influential	Pretty influential	Extremely influential
Occupational burnout	○	○	○	○	○	○	○
Compassion fatigue	○	○	○	○	○	○	○
Familiarity with euthanasia	○	○	○	○	○	○	○
Access to controlled substances	○	○	○	○	○	○	○
Ethical challenges	○	○	○	○	○	○	○
Financial stress due to educational or professional debt	○	○	○	○	○	○	○
Client complaints	○	○	○	○	○	○	○
Client expectations	○	○	○	○	○	○	○
Work-related cyberbullying	○	○	○	○	○	○	○
Demands of the practice	○	○	○	○	○	○	○
Practice management responsibilities	○	○	○	○	○	○	○
Competition between practices	○	○	○	○	○	○	○
Making professional mistakes	○	○	○	○	○	○	○

End of Block: Default Question Block

Thank you for your participation in this survey. If you, a colleague, or a loved one are having thoughts of suicide, please seek professional help or call the National Suicide Prevention Lifeline (1-800-273-8255). The Lifeline provides 24/7, free and confidential support for people in distress, prevention and crisis resources, and more. We can all help prevent suicide.